# AMATEUR RADIO

VOL 53, No 12, DECEMBER 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

# EMTRONICS

NOW IN
## MELBOURNE

**DON'T MISS YOUR GOLDEN OPPORTUNITY WINNING THREE FABULOUS PRIZES VISIT OUR NEW STORE NOW!**

**1st Prize — KENWOOD TS-430S**
**2nd Prize — EMTRON ACE**
**3rd Prize — HX 1000 REGENCY**

**Still considered the best HF tx on the market**

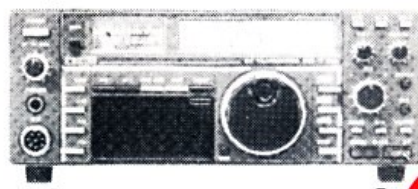
**Australia's best and most popular UHF 40ch CB H/H tcvr**

**Hand-Held Scanning Receiver**

FOR BEST SERVICE AND PERSONAL ATTENTION MEET FRED VK3ZZN, PREVIOUSLY FROM AM-COMM — OUR NEW STORE MANAGER

**WE STOCK THE LARGEST RANGE OF AMATEUR RADIO EQUIPMENT IN AUSTRALIA!**

- **HF, VHF, UHF Transceivers such as:** ICOM, KENWOOD, YAESU, AZDEN, KDK, BELCOM, KENPRO
- **HF & UHF CB Transceivers:** FINEST BRANDS ONLY
- **HF, VHF, UHF Antennas:** MOBILE AND BASE
- **World's largest range of antenna rotators:** OVER 15 DIFFERENT MODELS
- **Baluns, LP & HP Filters**
- **Morse Keys and Electronic Keyers**
- **Morse Trainers and Code Practice Oscillators**
- **Audio Filters, Notch Filters, Woodpecker Blankers**
- **Australia's largest range of Communication and Scanning Receivers**
- **We are Australia's only supplier of sophisticated special Communications Systems such as RTTY, SSTV, Computer Interfaces, etc**
- **Amateur and Professional Code Converters**
- **Many exciting products for the SWL**
- **Printers and Monitors**
- **Fantastic New World Clocks — Desk and Wall**
- **RF Power Amplifiers**



**KENWOOD & ICOM PRODUCTS IN STOCK SEE US FIRST**

**NO JUNK ELECTRONICS AT EMTRONICS**

**SEE TWO NEW VHF TRANSCEIVERS AZDEN PCS-5000 AND KDK FM-240**

**WE WILL SOON HAVE THE LARGEST DISPLAY OF PROFESSIONAL ELECTRONIC TEST INSTRUMENTS:** ● *CATHODE RAY OSCILLOSCOPES* ● *FREQUENCY COUNTERS* ● *DIGITAL MULTIMETERS* ● *ANALOGUE MULTIMETERS* ● *LARGEST RANGE OF PANEL METERS IN AUSTRALIA* ● *DIGITAL L C R METERS* ● *R F POWER METERS* ● *SWR METERS & MANY OTHER INSTRUMENTS*

EMTRONICS

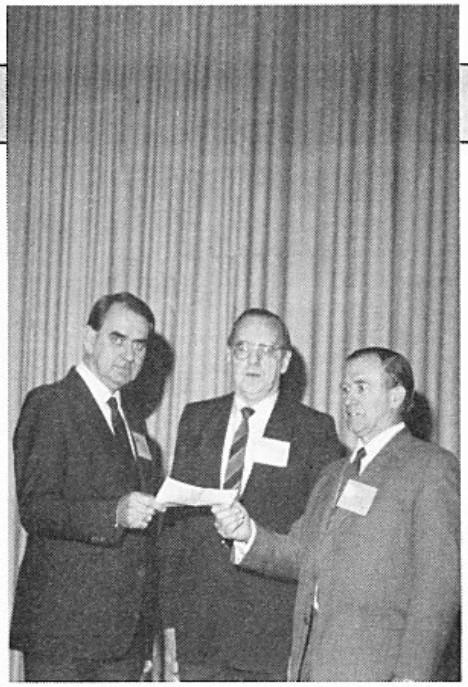
**NSW STORE & HEAD OFFICE:**
**92-94 Wentworth Ave, Sydney, NSW. 2000**
**Ph: 211 0988, TELEX: AA 73990 EMOLEC**

**VIC STORE:**
**288-294 Queen St, Melbourne, Vic. 3000**
**Entrance from Little Lonsdale St**
**Ph: (03) 67 8551 or 67 8131**

**Correspondence & Mail Orders: Box K21, Haymarket, NSW. 2000**

# AMATEUR RADIO

Published monthly as the Official Journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859. Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

The (Right) Honourable Michael Duffy (left) presents a congratulatory telegram to David VK3ADW, watched by Dick Butler.

## SPECIAL FEATURES



## TECHNICAL FEATURES



## REGULAR FEATURES



*Here we are at the close of another year. During 1985, the WIA's 75th Anniversary Year, Amateur Radio has presented many historical stories, including some special contributions from the Divisions. All in all, it has been an interesting year, and it has certainly been interesting for the Old Timers to reminisce, and it has given the younger members an insight into some of the difficulties that were faced by the pioneers of amateur radio.*

*Locator Systems have come to the fore during 1985, and this month's magazine has another computer programme to locate your Locator using the VIC-20 series of computers, see page 10.*

*Reg VK2ELG, a favourite writer with many readers for his series of Clandestine articles has put pen-to-paper again. This time Reg describes how he constructed a drink heater element for use of his fellow POWs in Germany, see page 14.*

*A recent happening on the amateur radio scene has been the invaluable assistance it has given to many during the tragic earthquakes in Mexico City. Jim VK3PC, gives a brief discription of the services provided by the Australian Traffic Net, page 19.*

*Chris Long, former Acting Curator of Electronics at the Museum of Victoria, a 'doyen' of the history of electronics, has compiled a history of some of the first magazines available to the radio experimenter, page 21. Chris has spent many hours perusing the magazines at the State Library of Victorian, and has managed to obtain some photocopies of the covers of some of some of the more interesting ones.*

*December is the time for the publication of the entire index for the year, so turn to page 26 and see if you have missed reading an article of interest. Next month will also feature the Technical Index for the past five years.*

*Season Greetings to all readers!*

## DEADLINE

**All copy for inclusion in the February 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 2nd January 1986.**


**EDITOR**
*BILL RICE* VK3ABP*

**TECHNICAL EDITORS**
*PETER GAMBLE VK3YRP**
*PETER GIBSON VK3AZL**
*EVAN JARMAN VK3ANI**
*DOUG MCARTHUR VK3UM**
*GIL SONES VK3AUI**

**CONTRIBUTING EDITORS**
*Joe Ackerman VK4AIX*
*Brenda Edmonds VK3KT*
*Marshall Emm VK5FN*
*Ron Fisher* VK3OM*
*David Furst VK3YDF*
*Roy Hartkopf VK3AOH*
*Robin Harwood VK7RH*
*Ron Henderson VK1RH*
*Ian Hunt VK5QX*
*Colin Hurst VK5HI*
*Eric Jamieson VK5LP*
*Bill Martin VK2COP*
*Ken McLachlan VK3AH*
*Len Poynter* VK3BYE*

**DRAFTING**
*George Brooks*
*Liz Kline*

**BUSINESS MANAGER & SECRETARY**
*Reg Macey*

***Members of Publications Committee**

**Enquiries and material to:**
*The Editor,*
*PO Box 300, Caulfield South, Vic. 3162.*

*Material should be sent direct to* **PO Box 300, Caulfield South, Vic. 3162,** *by the* **23rd day of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Watch the space below the index for deadline dates. Phone: (03) 528 5962.**

*HAMADS should be sent direct to the same address, by the same date.*

*Acknowledgement may not be made unless specifically requested. All important items should be sent by Certified Mail. The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.*

**TRADE PRACTICES ACT**
*It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with* **strictly.**

**VICTORIAN CONSUMER AFFAIRS ACT**
*All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.*

**Production: BETKEN PRODUCTIONS**
*5 Masefield Avenue, Mooroolbark, Vic. 3138.*

**Laser Scanned Colour Separations by: QUADRICOLOUR INDUSTRIES PTY LTD**
*22-24 Glenvale Crescent, Mulgrave, Vic. 3170.*
*Tel:(03) 560 2222*

**Typesetting by: BETKEN PRODUCTIONS**
*5 Masefield Avenue, Mooroolbark, Vic. 3138.*

**B-P TYPESETTING**
*Geddes Street, Mulgrave, Vic. 3170.*
*Tel:(03) 561 2111*

**Photographic film and processing material courtesy: AGFA-GEVAERT LTD AUSTRALIA**

**Printers: WAVERLEY OFFSET PUBLISHING GROUP**
*Geddes Street, Mulgrave, Vic. 3170.*
*Tel:(03) 560 5111.*

**Mail Processing by: AUTOMAIL PTY LTD**
*14 Stamford Road, Oakleigh East, Vic. 3166.*
*Tel:(03) 568 6677*

# CONGRATULATIONS WIA

MESSAGE

DR DAVID WARDLAW

I WOULD LIKE TO OFFER MY CONGRATULATIONS TO THE INSTITUTE ON THE OCCASION OF YOUR 75TH ANNIVERSARY

THE AMATEUR SERVICE HAS CERTAINLY PROGRESSED A LONG WAY SINCE THE INSTITUTE WAS FORMED IN THE EARLY PART OF THIS CENTURY

YOUR RECORD OF PUBLIC SERVICE AND SOUND GUIDANCE OF THE AMATEUR SERVICE IS WELL KNOWN AND DEEPLY APPRECIATED BY MY GOVERNMENT

FROM R J L HAWKE

TELEX ME

MESSAGE TEL

MESSAGE 303 ROUTE KB7FE PHEONIX ARIZONA

TO THE WIA

DEAR GENTLEMEN CONGRATULATIONS YOUR 75TH ANNIVERSARY

AS YOU KNOW I HAVE BEEN A HAM RADIO BUFF FOR AS LONG AS I CAN REMEMBER

THE AUSTRALIAN WIRELESS INSTITUTE HAS BEEN OF INESTIMABLE VALUE TO YOUR GREAT MISSION PARTICULARLY IN TIMES OF EMERGENCY

I CANNOT TELL YOU HOW PROUD I AM OF YOUR ORGANISATION AND THE PLEASURE IT GIVES ME TO BE A FELLOW HAM

WITH BEST WISHES

SIGNED SENATOR BARRY GOLDWATER K7UGA

AGE TELEX ME

TELEX MESSAGE TEL

MESSAGE 295 ROUTE KB7FE PHOENIX ARIZONA

TO THE WIA

IT GIVES ME GREAT PLEASURE TO EXTEND MY WARMEST GREETINGS TO THE MEMBERS OF THE WIA ON THE OCCASION OF YOUR 75TH ANNIVERSARY

OVER THE YEARS HAM RADIO OPERATORS HAVE DONE ENORMOUS GOOD WORK IN GENERATING INTERNATIONAL FRIENDSHIP AND UNDERSTANDING THEIR NETWORK HAS ALSO BEEN INVALUABLE IN TIMES OF EMERGENCY AND AS THE OLDEST NETWORK OF SUCH OPERATIONS IN THE WORLD WIA CAN TAKE JUSTIFIABLE PRIDE IN THE GOOD WORK YOU HAVE DONE

I COMPLIMENT YOU ON THAT AND WISH YOU ALL THE BEST FOR THE FUTURE

I HAVE ASKED THAT THIS MESSAGE BE TRANSMITTED FROM WASHINGTON BY A FAIRLY WELL KNOWN HAM MY GOOD FRIEND SENATOR BARRY GOLDWATER K7UGA

HE IN TURN HAD IT TRANSMITTED THROUGH A CONSTITUENT IN PHOENIX ARIZONA FRANCIS MARKS KB7FE

IN THIS WAY HAMS HAVE AGAIN PROVEN THEIR ABILITY AND EFFICIENCY

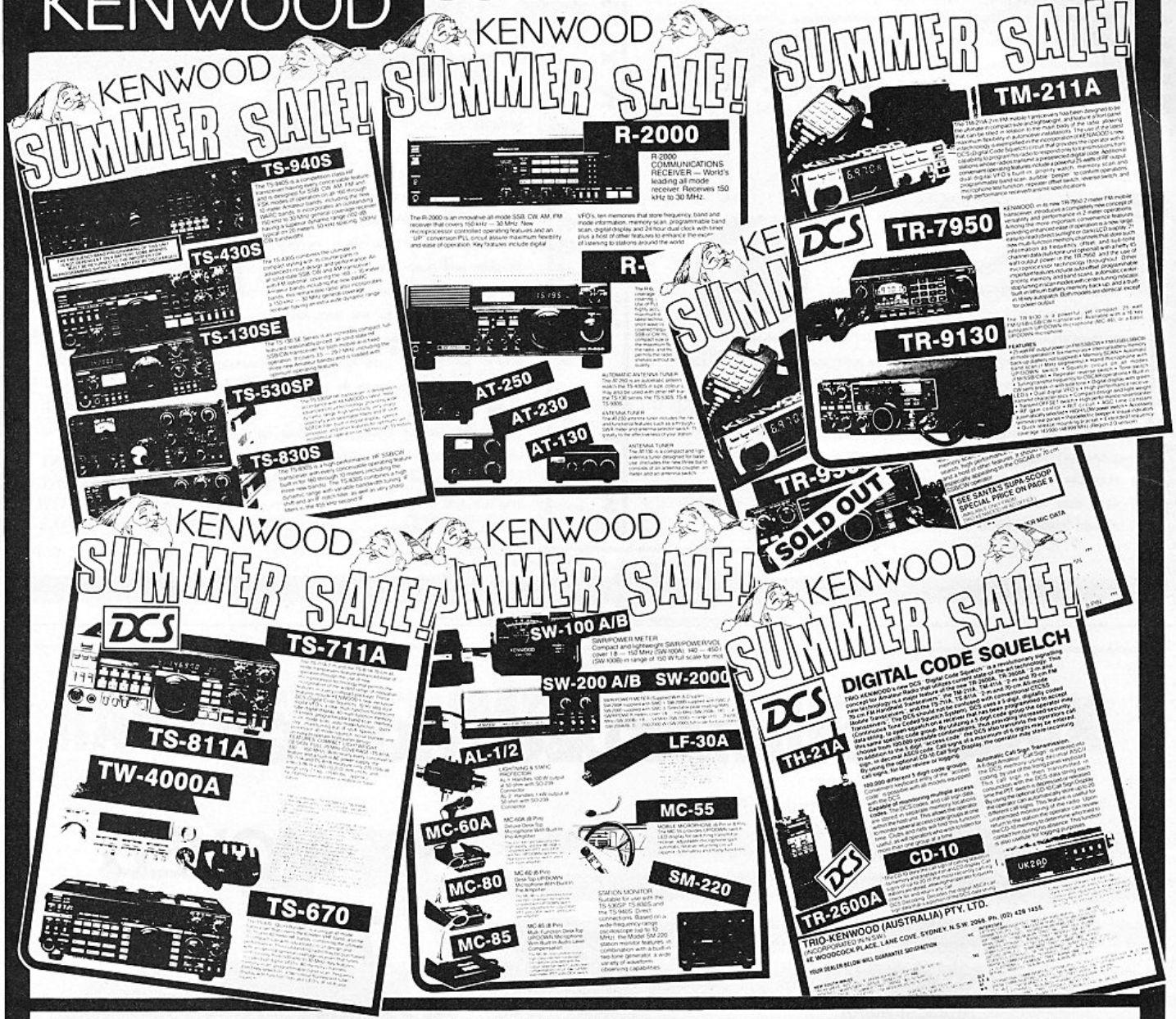
KEEP UP THE GOOD WORK AND GOD BLESS YOU

SIGNED RONALD REAGAN

TELEX MESSAGE

# KENWOOD

# LAST CHANCE FOR SUMMER SALE SPECIALS




## TRIO-KENWOOD (AUSTRALIA) PTY. LTD.

(INCORPORATED IN N.S.W.)

**4E WOODCOCK PLACE, LANE COVE, SYDNEY, N.S.W. 2066. Ph. (02) 428 1455.**

Further, beware of dealers not listed in this advertisement who are selling Trio-Kenwood communications equipment. All Kenwood products offered by them are not supplied by Trio-Kenwood (Aust.) Pty. Ltd. and have no guarantee applicable.

**YOUR DEALER BELOW WILL GUARANTEE SATISFACTION**

***NEW SOUTH WALES***

TRIO-KENWOOD (AUST.) P/L — 4E WOODCOCK PLACE, LANE COVE (02) 428 1455
EMTRONICS — 94 WENTWORTH AVENUE, SYDNEY (02) 211 0988
WASSIL ELECTRICAL — 71 SUMMER STREET, ORANGE (063) 62 6249
REG STOCKMAN COMMUNICATIONS — CNR. BANOCKBURN ROAD & SHIRLEY STREET, INVERELL (067) 22 1303
WORMALD COMMUNICATIONS — 51 DENNISON STREET, HAMILTON, NEWCASTLE (049) 69 1999
MACELEC PTY. LTD. — 99 KENNY STREET, WOLLONGONG (042) 29 1455
E. & K. COMMUNICATIONS — 14 DUTTON STREET, DICKSON, A.C.T. (062) 49 6437
DX ENGINEERING — 5 JASMINE STREET, PORT MACQUARIE (065) 82 0175
NORTHERN COMMUNICATIONS — 249 MARIUS STREET, TAMWORTH (067) 66 6935
FRANK BOUNDY — LISMORE (066) 86 2145

***INTERSTATE***

VIC: EASTERN COMMUNICATIONS — 168 ELGAR ROAD, BOX HILL (03) 288 3107
PARAMETERS PTY. LTD. — 1064 CENTRE ROAD, SOUTH OAKLEY (03) 575 0222
EMTRONICS — SHOP 5, 285 QUEEN STREET, MELBOURNE (03) 67 8131
BRIAN STARES — 11 MALMSBURY STREET, BALLARAT (053) 39 2808
SUMNER ELECTRONICS — 78 KING STREET, BENDIGO (054) 43 1977
TAS: HOBBY ELECTRONICS — 477 NELSON ROAD, MT. NELSON (002) 23 6751
WATSONS WIRELESS — 72 BRISBANE STREET, HOBART (002) 34 4303
ADVANCED ELECTRONICS — 5A THE QUADRANT, LAUNCESTON (003) 31 7075
MARINE & COMMUNICATION — 19 CHARLES STREET, LAUNCESTON (003) 31 2711
V.K. ELECTRONICS — 214 MOUNT STREET, BURNIE (004) 31 7733
QLD: MITCHELL RADIO CO. — 59 ALBION ROAD, ALBION (07) 57 6830
S.A. &
N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. — 8 NILE STREET, PORT ADELAIDE (08) 47 3688
W.A.: ARENA COMMUNICATIONS SERVICES — 642 ALBANY HIGHWAY, EAST VICTORIA PARK (09) 361 5422
TRI-SALES — CNR. NEWCASTLE & CHARLES STREETS, PERTH (09) 328 4160
WILLIS ELECTRONICS — 165 ALBANY HIGHWAY, VICTORIA PARK (09) 470 1118
BAY RADIO — 22 GRACE STREET, FERNDALE (09) 451 3561
FORD ELECTRONICS — 209 HANCOCK STREET, DOUBLE VIEW (09) 446 4745

# EDITOR'S COMMENT

## 1985 IN RETROSPECT

As our 75th Anniversary year draws to its close we may recollect several highlights, the most recent being the Anniversary Dinner in November, at Melbourne's Southern Cross Hotel. Very rarely, perhaps never before, have leaders representing so large a proportion of the world's radio amateurs come together under one roof. The combination of our Dinner and the IARU Region 3 Conference immediately following it in Auckland, proved to be a powerful attraction to this part of the world for the leading executives of amateur societies from 15 overseas countries, and all three ITU/IARU Regions. We were honoured to have as official guests, the Secretary General of the ITU, Mr Richard Butler, and our Australian Minister for Communications, Mr Michael Duffy.

During the year we received letters of congratulation on our 75th Anniversary from our sister societies in almost 40 countries, and we can be sure that the WIA, and its standing as the oldest amateur society in the world, are better known everywhere as a result of our anniversary activities.

Throughout the year we have published many items of historical interest under the general title of "75th Nostalgia", and these have been received with interest, particularly by the older members. Unfortunately, this has reduced the space available for technical articles, but from now on the proportion of technical material will be much greater.

The WIA 75 Award seems to have been very successful, judging by the lists so far published of those who have qualified for it. Hopefully, even your busy Editor may find time before the end of December to make the remaining contacts needed to total 75!

Altogether, the work that has been done throughout the year by the enthusiastic volunteers on the 75th Anniversary Committee and their helpers in all Divisions has been a great boost to the WIA and to amateur radio in Australia.

To round off this most auspicious year, it is now my privilege once again, on behalf of the Publications Committee, and all those involved in producing this magazine, to wish you all a very Merry Christmas and may 1986 prove to be the happiest of New Years.

**Bill Rice VK3ABP**
**Editor**
**AR**

# WIA NEWS

## CISPR

The WIA, as a member of the Standards Association of Australia, is concerned with the activities of a number of international standards bodies, including the Special International Committee on Radio Interference (CISPR). Sydney was the recent venue of a major meeting of CISPR Sub-Committees, at which the WIA was represented, both in an official and social capacity.

Firstly, some background on CISPR. This is an international committee directly associated with the International Electrotechnical Commission (IEC). It is responsible for the standardisation of Electromagnetic Interference Measurement, and for the recommendation of appropriate standards for the protection of radio services. A number of sub-committees covers such subjects as; Methods of Measurement of Interference, Industrial Scientific and Medical Equipment, Interference from Overhead Power Lines, High Voltage Equipment and Electric Traction Systems, as well as other well-known sources of RFI problems.

All sub-committees of CISPR are of some interest to the amateur service, but probably the most important is Sub-Committee E, which deals with the interference characteristics of radio receivers (and associated equipment). The immunity of television receivers, broadcast receivers, audio frequency amplifiers, etc is covered by this sub-committee, and a special working group.

The Australian Standards Association is the accredited point of contact with CISPR, and its Committee TE/3 is the responsible national group for electromagnetic interference. The WIA, through its representation on the TE/3 Committee, is able to monitor international activity in this area, and contribute to the work of SAA, CISPR, and the IEC on a continuing basis.

Since CISPR has its headquarters in Geneva, most of its meetings are held in European countries. It was, therefore, a very special occasion to have a full scale meeting of all sub-committees of CISPR in Sydney during August/September 1985.

Allan Foxcroft VK3AE, WIA Representative on the SAA Committee TE/3, was a member of the Australian delegation to the CISPR meeting, and attended sessions of Sub-Committee E. The delegation was able to contribute to the proceedings, particularly in respect to methods of measurement of immunity. It was also of significance that quite independent Australian work on the setting of immunity levels was, in many areas, closely in line with those proposed within the CISPR working group. This will finally lead to much-needed Australian standards on the immunity performance of commercial television receivers, AF amplifiers, etc.

The Federal Executive also took action to contribute financially to a function held at the end of the Conference to farewell international delegates. The function, held in the Board Room of Philips Industries, North Sydney, was jointly sponsored by the Institution of Radio and Electronics Engineers, (WIA's sister organisation), the Institution of Engineers,and the Wireless Institute of Australia.

Four members of the WIA attended officially — Allan Foxcroft, from Federal Executive, and Peter Jeremy, Tim Mills and Stephen Pall from the New South Wales Division.

The Institute's involvement in the function proved most effective in bringing our organisation, and hobby to the attention of international delegates to CISPR. The WIA's 75th Anniversary celebrations were referred to by a number of speakers, and this led to reminiscences of amateur activities in the welcoming address by the immediate past-President of the IREE, Dr Wing. 75th Anniversary posters, which were on display, were quickly 'souvenired' — and the pity was that we did not have more to distribute.

The fact that the WIA 'was probably the senior partner emerging from the IREE/WIA common origins' was conceded by Mr Ian Shearman, in a jocular fashion, during his address to delegates on behalf of the Electrotechnical Committee of the SAA.

The contacts made, and the publicity gained, for the amateur service, and the WIA in particular, are considered to be of great value, and will undoubtedly facilitate negotiation of the amateur case in the future.

Allan Foxcroft VK3AE
AR

# SEASONS GREETINGS

# QSP

Our 75th Anniversary Year is now drawing to a close and, on behalf of the Executive, I would like to convey to you all the best of Season's Greetings.

This year, a milestone in amateur radio, has resulted in a close examination being made of the past history of the WIA, which, of course, is intimately connected with the development of amateur radio, in Australia.

In the early days, amateurs took up the challenge of the unknown. They were certainly to the fore-front in advancing technology, such as the use of shortwaves, during the early 20s.

Since those days, there has been a technological explosion, the rate of change being almost exponential.

The sophistication, and complexity, of modern frontier research makes it very expensive, and as a consequence, puts it largely out of the range of an individual, and into that of an institution.

However, this does not mean that the individual, who had a place in the past, has lost it. But, by necessity, his, or her contribution perhaps cannot be as great as that made by the individual in the pioneering days.

Because of the diverse nature of radio communications, there will always be a challenge for the individual to advance.

The Amateur Radio Service is a Radio Communications Service, recognised by the International Telecommunications Union, and defined by it as follows:

*"Amateur Service: a radio communications service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs. That is – by duly authorised persons interested in radio technique solely with a personal aim, and without pecuniary interest".*

This definition is as pertinent now as it has ever been.

It acknowledges that there are individuals to whom there is a desire to become involved in radio communications, just for the love of it.

It is obviously necessary to regulate the use of the radio frequency spectrum internationally, to avoid chaos. In this regulated spectrum a space has been provided for the Amateur Service.

Because of the diverse nature of the many aspects of developing radio communications, recognition has been made of possible future needs.

The Amateur Service, because of its unique status as a radio communications service that is not dedicated to any specific purpose has, in the past, provided communications in many emergency situations, and will continue to do so in the future. It does this at minimal cost to the community.

The Amateur Service, because radio waves do not stop at national borders, is a great ambassador of international goodwill.

In conclusion, amateur radio to the individual amateur, is what he or she wishes to make it.

There is a place for all, no matter what their special interests may be.

Remember, we are all amateurs because we want to be, not because we have to be.

**David Wardlaw VK3ADW**
**FEDERAL PRESIDENT**

## DECEMBER 1985

| SUN | MON | TUE | WED | THU | FRI | SAT |
|---|---|---|---|---|---|---|
| **1**<br>1 Advent Sunday | **2** | **3** | **4**<br>4 Three weeks to Christmas | **5**<br>5 Thailand National Day | **6**<br>6 Finland Independance Day 1917 | **7**<br>7 ARRL 160m Contest |
| **8**<br>8 Hanukkah<br>8 ARRL 160m Contest | **9** | **10**<br>10 Christmas Social — VK5 | **11** | **12**<br>12 VK2 School Breakup | **13**<br>13 VK4 School Breakup<br>13 VK1 School Breakup | **14**<br>14 ARRL 10m Contest<br>14 Ross Hull VHF Contest Begins |
| **15**<br>15 ARRL 10m Contest | **16**<br>16 Anniversary Day: Canterbury ZL | **17** | **18**<br>18 VK6 School Breakup | **19**<br>19 VK3 School Breakup<br>19 VK7 School Breakup | **20**<br>20 VK5 School Breakup | **21** |
| **22**<br>22 Summer Solstice<br>22 Last VK2 Broadcast | **23** | **24** | **25**<br>25 Christmas Day | **26**<br>26 Boxing Day | **27** | **28** |
| **29** | **30**<br>30 Proclamation Day VK5 | **31**<br>31 New Years Eve<br>33 UBA SWL Competition<br>31 VK2 Administration Year Ends | | | | |

# WIA Seventy Fifth Anniversary

## 75 AWARD RECIPIENTS

*Following are the names, and call signs of recipients 201 to 372 of the WIA 75 Award.*

Ori Siegel VE/SWL ..... 201
Karl Luckhart W9YWX ..... 202
Keith Champlin W0MCY ..... 203
Bob Carter W7INP ..... 204
George Burgess VK5NGB ..... 205
E J Wissemann VK4ADA ..... 206
Eddy Antony YB8AY ..... 207
Murray Jones VK5BVJ ..... 208
Dick McKercher W0MLY ..... 209
Graeme Harris VK3BGH ..... 210
Ismael Perez EA5DHE ..... 211
John Hannan KA6RAQ ..... 212
Ralph Ernstein W6SPQ ..... 213
Kaneaki Miyamoto JA1UZQ ..... 214
Thomas Dorset WB4J ..... 215
Ivan Searle VK5NSI 216
William Heslop ZL1LU ..... 217
Wal Sullivan VK3CTS ..... 218
Robyn Robb ZL1BXR ..... 219
Mukoyasu Niijima JL1BBD ..... 220
David Paperman WB5INB ..... 221
George Brzostowski VK1GB ..... 222
Brent Burnett KL7KJ ..... 223
M L Dickinson VK3GZ ..... 224
John Heys G3BDQ ..... 225
Mike Groth VK5AMG ..... 226
Joe Ackerman VK4AIX ..... 227
Abet Suhaian YB4FNN ..... 228
Frank Chapel Jr K9PSN ..... 229
Ivan McEwan ZL/SWL ..... 230
Steve Allen W6TGI ..... 231
John Gash VK4KCX ..... 232
Arlo Myers WA6UDR ..... 233
Alan Foulstone VK3VAF ..... 234
Gerald Hill KH6HU ..... 235
Davys Baldwin VK7DS ..... 236
William Fleming WA6CXX ..... 237
Brian Adams G4RFV ..... 238
Elbert Wood W4JFL ..... 239
Andre Effendi VK2NAF ..... 240
Fred Reid VK7FD ..... 241
Alfred Johnson W8RHG ..... 242
Reg Cooke VK2DJJ ..... 243
Robert Garbe FK8AH ..... 244
Gary McCrorey AL7BL ..... 245
Dale Loffler VK5BOK ..... 246
Ray Nolan VK6NRN ..... 247
Dmitri Perno VK4BDP ..... 248
Chas Orr VK2CO ..... 249
P D Neilson ZL2QY ..... 250
Rob Walter VK6RG ..... 251
M Shiono JM3CNH/MM ..... 252
Leon Reichelt VK3NLR ..... 253
K Vriens VK3AFI ..... 254
Bernie Maier WB3DWH ..... 255
Glen Moss NC9N ..... 256
Neville Pietsch VK3PNP ..... 257
John Fogden G4WSX ..... 258
Donald Simmonds K5BDX ..... 259
Leo Kessinger W5KFN ..... 260
Gary Harbour N5GWA ..... 261
Larry Warner K5SNA ..... 262
Takashi Yoshida JH3TWV ..... 263
Kimiko Yoshida JR3JEN ..... 264
Dulcie Hornsby VK4BDH ..... 265
Bob May K4SE ..... 266
Louis Brill NQ6S ..... 267
Chuck Imsande W6YLJ ..... 268
Graham Hawtree ZL2AHR ..... 269
Mac Peirson W6QBW ..... 270
Howard Davis KB6DJC ..... 271
E C McTurk ZL1LS ..... 272
P T R McTurk ZL1BEK ..... 273
Gerry Heine K5PG ..... 274
Jack Winstanley ZL0AIU ..... 275
Jim Elliott W5IYR ..... 276
Des Coote ZL2LQ ..... 277
Dick Walker N7FTL ..... 278
Abdul Hamid Achmad YB0AO ..... 279
Sid Carson N5HFR ..... 280
Phillip Catterall G4OBK ..... 281
Des Tricker ZL1ANN ..... 282
Ken Spraggins K6EBG ..... 283
Richard Birbeck K6CID ..... 284
A S Kuchare W2EKO/4 ..... 285
Bill McQuien KG6FG ..... 286
C Del Balzo I0JLX ..... 287
Yan Bambang S. YB3CEV ..... 288
Steve Ball KY6L ..... 289
Vic Hearne VK3CQP ..... 290
Ashley Bolton VK3NAB ..... 291
John Camilleri VK2NOG ..... 292
Cyril Roberts VK6OE ..... 293
Brian Cooper ZL2AZM ..... 294
Mervyn Vinicombe VK1MV ..... 295
Hans Piehl DJ9RX ..... 296
Peter Jones ZL1 261/SWL ..... 297
Colin Heath VK5FX ..... 298
Bill Dalgleish VK4UB ..... 299
Nancy Dietrich KA6WJI ..... 300
Sherman Harrison KV4F ..... 301
Robert Boone WB4FNH ..... 302
Ellis Watts VK2DDW ..... 303
Robert Kaiser KA2MBA ..... 304
Alan Abel ZL2QR ..... 305
Saviour Galea VK2AKP ..... 306
Alan Mills GW3NNF ..... 307
Matthew Rayner L10120 ..... 308
Steven Cima VK3DQK ..... 309
Monte 'Ron' Stark KU7Y ..... 310
Mark Jeffrey VK3PUC ..... 311
B Homquist VK2PQT ..... 312
Jock Fisher VK1LF ..... 313
Max Temple VK7NAX ..... 314
Dave Robinson ZL2BJI ..... 315
Val Quinn KG6TI ..... 316
Nancy Robinson KC4IK ..... 317
Gordon Welsh VK5KGS ..... 318
Adelaide Hill ARS VK5BAR ..... 319
Tatsuo Saito JE7GGF ..... 320
Teruko Saito JE7KCH ..... 321
H E Sporrer VK2DUO ..... 322
J W Little W6AC ..... 323
Jim Henderson K6JAD ..... 324
D J Reed N6LEC ..... 325
Lucky Henderson W6KON ..... 326
Alberto Guarino YV2BYT ..... 327
Mike Maynard KJ4FZ ..... 328
John Smetona K3SLJ ..... 329
Harry Fillager KB8XQ ..... 330
George Smith K7OZ ..... 331
Paul Staton KD5DR ..... 332
Martin Hutchings VK2VMH ..... 333
Phillip Connoly VK2JPC ..... 334
Tony D'Anastasi VK2PZL ..... 335
John Kelleher VK3DP ..... 336
Maurice Bartley VK4SK ..... 337
David Long VK3BY ..... 338
Robert Farkaly K9RHY ..... 339
Hisayuki Kuroda JK3EVV ..... 340
G A Devonshire VK4BGA ..... 341
Dave Fowler G4YWG ..... 342
R D Dew VK1NUB ..... 343
Bron Brown VK3NTD ..... 344
H Fietz VK7NFH ..... 345
J Hodkinson VK2BHO ..... 346
Akio Okuda JF3BNN ..... 347
Frank Vella VK2VFL ..... 348
Steve Curtis VK3CAX ..... 349
Tony Mullen VK2BAM ..... 350
Ian Callcott VK2EXN ..... 351
D A Thornley VK5NOD ..... 352
Sam Gillgren ZL1AOE ..... 353
Owen Langham VK7OL ..... 354
Allan Doble VK3AMD ..... 355
Steven Forney N0DMT ..... 356
Tony Smaker Jr. KL7AF ..... 357
Ronald Hutapea YC8PR ..... 358
John Tracey VK4BTJ ..... 359
Allen Hart N7FYU ..... 360
Bill Drumond KG6UA ..... 361
Jim White N6JYG ..... 362
Ken Hurrell G3NBC ..... 363
Gianni Santangelo I8SAT ..... 364
Stan Pemberton VK2SP ..... 365
Wayne Smith VK2PWS ..... 366
J F Costa VK3DKR ..... 367
Peter Balnaves ..... 368
Osamu Hirobe JH3SUV ..... 369
Junko Okuda JI3FBW ..... 370
William Helwig WK4F ..... 371
Kenton Dean NK6F/VK8KD ..... 372

# WIA CW CONTEST PRESENTATION

The President's Cup and a Morse key, donated by William Willis, were presented to the winner of the 1985 WIA CW Contest at the Oxley Region Amateur Radio Club's Annual Field Day, 1985. The winner was Oxley Club Member Peter Alexander VK2PA.

The Club was honoured by the presence of Peter Jeremy VK2PJ, Jeff Pages VK2BYY, and Tim Mills VK2ZTM, members of the NSW WIA Executive, who journeyed to Port Macquarie for the presentation and Field Day.

Peter VK2PJ, congratulated Peter VK2PA, on his great performance, after giving those in attendance a brief history of the President's Cup. Peter also expressed the appreciation of the WIA NSW Division for VK2PA bringing the Cup to New South Wales.

The were approximately 150 visitors and club members present at the presentation, and the applause was deafening when Peter responded. He said it was quite an emotional win for him as he considered it to be a most prestigous event to capture. More so, because of the history attached to the Cup, added to 1985 being the 75th Anniversary Year. Offers came from members to help him keep the Cup 'polished'. Peter threw down the challenge that he will hold the Cup for 1986, against all-comers!

### KEY TROPHY

At a special Club Dinner Night, members of the Club gathered to once again congratulate Peter VK2PA, as he received a specially mounted Morse key, very kindly provided by William Willis and Company Pty Ltd.

Club President, Keith VK2KDL spoke highly of Peter's dedication to amateur radio spanning some 45 years. In particular, Keith referred to Peter's long years of recognition in the CW field of amateur radio.

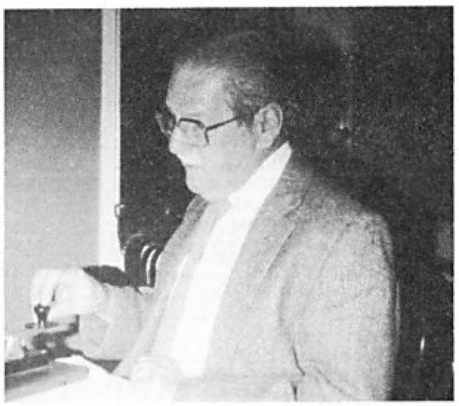
Peter responded by thanking the thoughtfulness of the management of William Willis for donating such a fine trophy, as a back- up to the President's

Cup for 1985. He said it will go into 'operation' and will hold pride of place in his home.

*Peter had 722 contacts in the recent 24 hour VK-ZL Oceania Contest - an average of around 30 contacts per hour. All contacts were fully signed and took place on the 80, 40, 20, and 15 metre bands. Approximately 400 contacts were on 40 metres, and included 195 prefixes. A truly commendable effort again, Peter.*

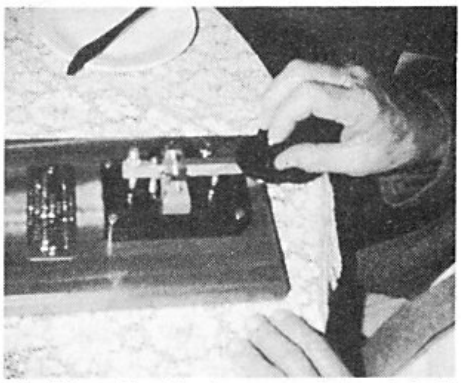
Contributed by Lester O'Connell VK2BFP, Club Secretary
**AR**

**Oxley Region ARC President, Keith VK2KDL, presents the President's Cup to Peter VK2PA, winner of the WIA CW Contest 1985.**



**"The Touch of a Master's Hand". Peter VK2PA tests the key presented to him for his winning entry in the WIA CW Contest.**

**Peter VK2PA proudly displays the President's CW Cup which was presented to him at the Annual Field Day of the Oxley Region ARC, 1985.**



**The Morse Key Trophy presented on behalf of William Willis to the winner of the WIA CW Contest.**



## SCHOOL BEGINS

The Australian Film and Television School began a 35-week training programme for SBS radio co-ordinators and broadcasters in Melbourne (21st October), and Sydney (29th October).

The project is aimed at enhancing the growth of quality ethnic broadcasting in Australia, and will run until August 1986.

For more information contact the Course Co-ordinator Joan Sharry (02) 887 1666, or the Assistant Co-ordinator Georgina Guilfoyle (03) 328 2517.

Contributed by Sandy George, Publicity/Information Officer

# SAFE TUNE-UP WITH THE FT-7

Bruce Doyle VK6ABD,
PO Box 85, Tuart Hill, WA. 6060

A discussion with a fellow amateur, Ross VK6DA, on the problems encountered when using transceivers with solid state finals in conjunction with an ATU, resulted in an article being resurrected from Ross's collection of Rad Com Journals, on an ATU pre match unit that always presents approximately 50 ohms to the transceiver, while adjustments are made to the ATU.

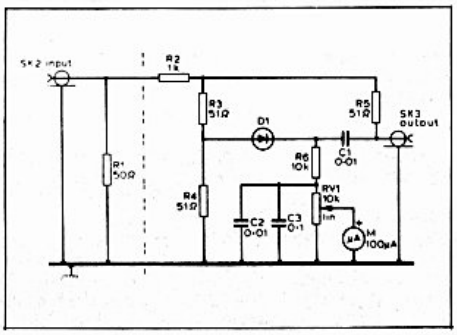
The article may be of interest to operators of solid state and valve transceivers alike, as the unit described also allows tuning of a transceiver into the antenna without any unwelcome carriers being transmitted into our already crowded bands.

The original unit design had the operator physically unplugging the unit from the transmission line to be able to conduct a QSO, but by incorporating a three pole/four way rotary switch (wired as in Figure 3), the unit may be built either as a separate unit or into the ATU and left in line.

I have tested the unit using both a TS-830S and TS-430S and have been able to tune a portable 80 metr helical dipole without the stations that I have wished to work, knowing that I had tuned up on the frequency that they were operating on.

The following is the article, written by Les May G4HHS, which appeared in Radio Communication, August 1981, page 715.

When the author's HW100 was replaced by an FT-7, no particular antenna matching problem was envisaged, as the half-size G5RV could be matched on 3.5 to 21MHz with the E-Zee Match in use. However, conversations with other operators indicated that the longevity of the transistors in modern solid-state power amplifiers was a matter of some concern; whether they were used operating valve power amplifiers is a poorly matched condition was not clear. What was well known was that the FT-7 and TS-120V transceivers must be operated with an output VSWR of less than 1.5:1.

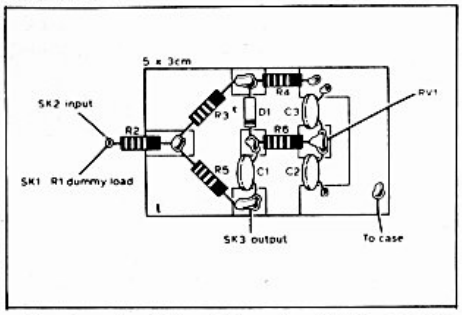



Provided a suitably tuned matching device is used, this does not present any problem. The procedure normally adopted with the FT-7 is to tune-up into a dummy load, and then to replace the dummy load with the E-Zee Match pretuned to the positions previously determined and logged when the HW-100 was in use. By pretuning the matching unit the instantaneous VSWR is always low enough for safety, and the possibility of a serious mismatch (which can occur during tune-up) is avoided. The requirements to pretune the antenna or ATU is stressed in the FT-7 manual. A major attraction of a compact lightweight rig is the opportunity it affords for mobile and portable operation, yet the pretuning requirements may act as something of a deterrent.

When a demonstration station was set up using a newly made G5RV antenna at the author's school, it was not possible to pretune the matching unit, and it was quickly realised that the instantaneous VSWR during the tune-up process was unacceptably high. Adjusting for maximum noise on receive was simply not good enough. What was required was a device which allowed the FT-7 always to 'see' 50 ohms while the antenna or ATU was being adjusted, however serious the instantaneous mismatch. A little reading and some thought produced the device shown in Figure 1, which was suggested by W Hayward and D DeMaw in their book 'Solid-state design for the radio amateur'.

The mode of operation may be understood by dividing the diagram at the dotted line. To the left R1 is a dummy load able to dissipate the output-power of the transceiver. It is shunted by everything to the right, made up of R2 and the effective resistance of R3, R4 and R5 together with the unmatched reactance of the antenna or ATU. It will be seen that whatever the condition at the output the shunting resistance will always exceed 1,000 ohms. A parallel combination of 50 ohms and 1,000 ohms resus in the load 'seen' by the transceiver being about 48 ohms, which is near enough to 50 ohms to be of no consequence.

The matching process itself is monitored by the RF bridge formed by R3, R4 and R5 and the output to the ATU. Because the three resistors are all 51 ohms the bridge is balanced when the ATU presents a pure resistance of 51 ohms. D1, C1, and the meter form an RF detector to sense the balance point; when the meter reads zero the bridge is balanced. Loading by the meter is reduced by R6 and RF is bypassed by C2 and C3. A sensitivity control was fitted but found to be unnecessary with the FT-7, as explained later. Some rough calculations suggested that R2 might need to be reduced to 500 ohms and that a diode with low turn-on voltage would be required. Because only a null reading, not a measurement, is desired, the meter does not have to be very special; a meter of the type to be found in portable cassette recorders will do provided it is no less sensitive than 100uA.




The layout of the bridge should be as symmetrical as possible, and a PCB layout is given in Figure 2. Because the board is symmetrical the input and output sides can be interchanged to suit the particular operator's convenience. Part of the board must be connected to the case by a thick wire, and a short length of desoldering braid is convenient. The 'works' fit comfortably into a 15 by 8 by 5cm diecast box. This is heavy enough to ensure the unit sits still on the bench, leaving both hands free for tuning up. The board is self-supporting on the input and output wires to the bridge. After wiring up and checking for shorts, the unit can be tested.

With a dummy load fitted to SK1, the input to SK2, SK3 not connected (to ensure maximum mismatch), and RV1 at minimum, power can be applied to the unit via an in-line VSWR bridge.

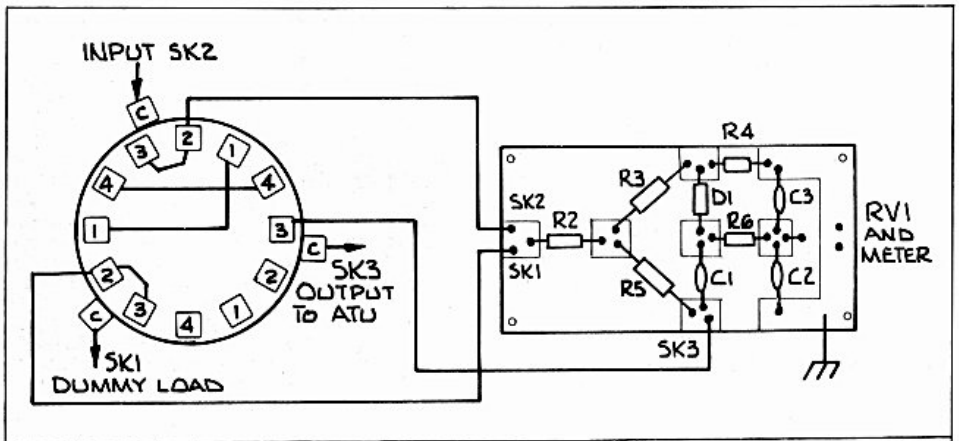



**Figure 3 — Modifications and Tune up Procedure with the addition of the three pole, four position switch.**

**1 Function Switch . . . Dummy Load; Tune Transceiver if applicable.**

**2 Function Switch . . . Meter Set; Key down Transceiver, set meter for full scale deflection with a 10 kohm linear pot.**

**3 Function Switch . . . ATU preset; Key down transceiver, adjust ATU until preset null meter reads zero.**

**4 Function Switch . . . Antenna Only; Check inline SWR meter. If necessary touchup ATU.**

If all is well in-line reflected power will be zero. The sensitivity control should be rotated until the meter reads full scale. If FSD cannot be obtained, R2 can be reduced but should not be less than 500 ohms. In practice, it does not matter if the meter reads a little less than full scale, and RV1 can be preset or left out entirely in this case. When the ATU is connected, the meter reading should fall a little. By adjustment, the match can be improved until the reading is zero, and no movement should be perceptible when the transmitter is keyed on and off. Some care is needed to ensure that the reading obtained is zero, as this indicates that the antenna is very well matched. When the antenna or ATU is connected to the output of the in-line bridge, the match will be found to be very close to the best obtainable with the ATU and antenna in use.

The unit described eliminates the possibility of an unintentional bad mismatch during antenna adjustment and, as a bonus, reduces the annoyance to other band users caused by continuous carrier being radiated during adjustment of the ATU. Very little RF reaches the antenna.

### MODIFICATION BY VK6ABD

The addition of a three pole, four position rotary switch, will allow the unit to remain in line during normal operating conditions.

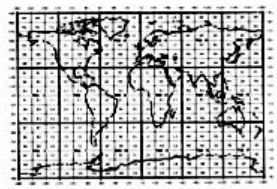
AR

## ROBBERY

Recently, Greg Whiter, of GFS Electronic Imports, was confronted by armed bandits, who escaped with $22 000 worth of electrical equipment, plus an amount of cash.

Next month, we hope to publish a comprehensive list of the serial numbers of the equipment stolen, in the hope of recovering the same.





# IARU LOCATORS


M O'Hare VK2ZQD
75 Sirius Street, Ruse, NSW. 2560


```
10 REM 2.1,VIC-20 EXPANDED, IARU LOCATORS
20 POKE36879,8:DIMT%(6):PRINTCHR$(5):PRINTCHR$(147):PRINT"   LOCATOR PROGRAM"
30 PRINT"**********************":PRINT:PRINT" VIC VERSION BY VK2ZQD":FORT=1TO150
0:NEXTT
100 PRINTCHR$(147):PRINT"THIS PROGRAM WILL:-"TAB(44)"(1)   DETERMINE IARU"
110 PRINT"       LOCATORS FROM          MAP REFERENCES":PRINT:PRINT"(2)   DETERMIN
E MAP"
120 PRINT"       REFERENCES FROM        IARU LOCATOR":PRINT:PRINT"(3)   DETERMINE
BEAM"
130 PRINT"       HEADINGS AND           DISTANCES FROM         MAP REFERENCES":PRIN
T
140 PRINT"PRESS:(1),(2) OR (3)          AND RETURN TO          SELECT DESIRED"
150 PRINT"       FACILITY":PRINT:PRINT"PRESS:(4) AND RETURN":INPUT"       TO END";
A$
160 A=VAL(A$)
170 IFA<0GOTO100
180 ONAGOTO1000,2000,3000,4000
190 GOTO100
1000 PRINTCHR$(147)"MAP REFERENCE TO IARU"TAB(44)"LOCATOR"
1010 PRINT:PRINT"LATITUDE   DEG,MIN,NS":PRINT:INPUTDAL,MAL,NS$
1020 IFDAL<0ORDAL>90ORMAL<0ORMAL>=60THEN1000
1030 IFNS$<>"N"ANDNS$<>"S"THEN1000
1040 PRINT:PRINT"LONGITUDE  DEG,MIN,EW":PRINT:INPUTDOL,MOL,EW$
1050 IFDOL<0ORDOL>180ORMOL<0ORMOL>=60THEN1040
1060 IFEW$<>"E"ANDEW$<>"W"THEN1040
1070 LO=DOL+MOL/60
1100 IFEW$="E"THENLO=180+LO
1110 IFEW$="W"THENLO=180-LO
1120 LA=DAL+MAL/60
1130 IFNS$="N"THENLA=90+LA
1140 IFNS$="S"THENLA=90-LA
1150 C$="ABCDEFGHIJKLMNOPQRSTUVWX":C1LO=INT(LO/20)+1:C1$=MID$(C$,C1LO,1)
1170 C2LA=INT(LA/10)+1:C2$=MID$(C$,C2LA,1):C3=INT(LO/2):GOTO1190
1180 C3=C3-10
1190 IFC3>=10THEN1180
1200 C4=INT(LA):GOTO1220
1210 C4=C4-10
1220 IFC4>=10THEN1210
1230 C5LO=LO/2-INT(LO/2):C5LO=INT(C5LO*24)+1:C5$=MID$(C$,C5LO,1)
1240 C6LA=LA-INT(LA):C6LA=INT(C6LA*24)+1:C6$=MID$(C$,C6LA,1):PRINT
1250 PRINT"MAP REFERENCE"TAB(66)DAL;MAL;NS$,DOL;MOL;EW$:PRINT
1260 PRINT"IARU LOCATOR"TAB(66)C1$;" ";C2$;C3;C4;C5$;" ";C6$:PRINT
1270 PRINT"PRESS RETURN TO SELECT":A$="":INPUTA$:GOTO160
2000 PRINTCHR$(147)"IARU LOCATOR TO MAP"TAB(44)"REFERENCE":PRINT:INPUT"LOCATOR";
L$
2010 IFLEN(L$)<>6THEN2000
2020 FORJ=1TO6:T%=ASC(MID$(L$,J,1)):L%=ASC(MID$("AA00AA",J,1)):T%(J)=T%-L%
2030 H%=ASC(MID$("RR99XX",J,1)):U%=H%-T%:IFT%(J)<0ORU%<0THEN2000
2040 NEXTJ:EW=T%(1)*20+T%(3)*2+T%(5)/12:NS=T%(2)*10+T%(4)+T%(6)/24
2050 EW=EW*10000:EW=INT(EW):EW=EW/10000
2060 IFEW>=180THENDOL=INT(EW)-180:EW$="E"
2070 IFEW<180THENDOL=INT(180-EW):EW$="W"
2080 MOL=INT((EW-INT(EW))*60):NS=NS*10000:NS=INT(NS):NS=NS/10000
2090 IFNS>=90THENDAL=INT(NS)-90:NS$="N"
2100 IFNS<90THENDAL=INT(90-NS):NS$="S"
2190 MAL=INT((NS-INT(NS))*60):PRINT:PRINT"IARU LOCATOR:"TAB(53)L$:PRINT
2200 PRINT"MAP REFERENCE:"TAB(44)DAL;MAL;NS$,DOL;MOL;EW$:PRINT
2210 PRINT"PRESS RETURN TO SELECT":A$="":INPUTA$:GOTO160
3000 PRINTCHR$(147);"BEAM HEADING, BEARING"TAB(44)"SOURCE STATION"
3010 PRINT:PRINT"LATITUDE   DEG,MIN,NS":PRINT:INPUTS1,S2,SNS$
3020 IFS1<0ORS1>90ORS2<0ORS2>=60THEN3000
3030 IFSNS$<>"S"ANDSNS$<>"N"THEN3000
3040 PRINT:PRINT"LONGITUDE  DEG,MIN,EW":PRINT:INPUTS3,S4,SEW$
3050 IFS3<0ORS3>180ORS4<0ORS4>=60THEN3040
3060 IFSEW$<>"E"ANDSEW$<>"W"THEN3040
3070 PRINT:PRINT"DESTINATION STATION"
3080 PRINT:PRINT"LATITUDE   DEG,MIN,NS":PRINT:INPUTD1,D2,DNS$
3090 IFD1<0ORD1>90ORD2<0ORD2>=60THEN3070
3100 IFDNS$<>"N"ANDDNS$<>"S"THEN3070
3110 PRINT:PRINT"LONGITUDE  DEG,MIN,EW":PRINT:INPUTD3,D4,DEW$
3120 IFD3<0ORD3>180ORD4<0ORD4>=60THEN3110
3130 IFDEW$<>"E"ANDDEW$<>"W"THEN3110
3140 S5=((S1+S2/60)*π)/180:S6=((S3+S4/60)*π)/180
3150 D5=((D1+D2/60)*π)/180:D6=((D3+D4/60)*π)/180
3160 IFS5>πORS6>2*πORD5>πORD6>2*πTHEN3000
3170 IFSNS$="S"THENS5=-S5
3180 IFSEW$="E"THENS6=-S6
3190 IFDNS$="S"THEND5=-D5
3200 IFDEW$="E"THEND6=-D6
3210 DEFFNA(X)=π/2-ATN(X/SQR(1-X*X)):X=SIN(S5)*SIN(D5)+COS(S5)*COS(D5)*COS(D6-S6
```

I had thought of writing this article after reading the articles by Harold Hepburn VK3AFQ, in the May and June issues of Amateur Radio, thinking that the programme could be converted for use on a VIC-20, and improved.

This programme will run on a standard VIC-20, VIC-20 with memory expansion, or the C-64.

To run the programme on a standard VIC-20 it must be slightly shortened. This can be done by removing input validation, though this requires that care must be taken to input only valid values, and in the correct order.

The lines to be deleted are: *1020; 1030; 1050; 1060; 2010; 2030; 3020; 3030; 3050; 3060; 3090; 3100; 3120; 3130; and 3230.*

To run the programme on a C-64, it is necessary to delete POKE 36879,8 from line 20, and insert a new line — 15 POKE 53280,4 = POKE 53281,0.

The screen layout of a C-64 is different to that of a VIC-20, having 40 rather than 22 characters across the screen. This means that the displays could do with a tidy up for use on a C-64.

The programme starts by clearing the screen and setting it to black, with white characters. A title block appears and is followed by a menu from which the desired function is chosen.

If any character, other than one of those listed is chosen the menu will reappear.

### SELECTION 1

The programme goes to step 1000, and displays 'MAP REFERENCE TO IARU LOCATOR'. The Latitude and Longitude are asked for, then checked for validity when given.

If a value is not valid, the Latitude and Longitude is asked for again.

```
3220 IF(1-X*X)=<0THEN3000
3230 I=FNA(X):SP=INT((I*180/π)*111.19):LP=INT(⟨2**6367.45)-SP)
3240 IFSIN(I)*COS(S5)=0THEN3000
3250 X=(SIN(D5)-(SIN(S5)*COS(I)))/(SIN(I)*COS(S5)):IF(1-X*X)=<0THEN3000
3260 H=FNA(X)
3270 IFSIN(D6-S6))=0THENH=2*π-H
3280 BSP=INT(H*180/π)
3290 IFH<πTHENBLP=BSP+180
3300 IFH>=πTHENBLP=BSP-180
3310 PRINTCHR$(147);"SOURCE STATION"TAB(44)S1;S2;SNS$,S3;S4;SEW$
3320 PRINT:PRINT"DESTINATION STATION"TAB(44)D1;D2;DNS$,D3;D4;DEW$
3330 PRINT:PRINT"SHORT PATH:"TAB(44)SP;"KM",BSP;"DEG"
3340 PRINT:PRINT"LONG PATH :"TAB(44)LP;"KM",BLP;"DEG"
3350 PRINT:PRINT"PRESS RETURN TO SELECT":A$="":INPUTA$:GOTO160
4000 PRINTCHR$(147)"END":END
READY.
```

The Locator is then calculated and values assigned, using string handling to cut down on typing. Output restates the Map Reference for verification, and the IARU Locator is given.

To return to the menu, press 'RETURN', or, if the desired function is known, then input the relevant number and press 'RETURN'.

### SELECTION 2

The programme goes to step 2000 and displays 'IARU LOCATOR TO MAP REFERENCE'. The Locator is asked for, then checked for validity when given.

If the Locator given is not valid it is asked for again.

The Map Reference is then calculated. Output restates the Locator for verification, and the Map Reference is given.

To return to the menu press 'RETURN', or if the desired function is known, then input the relevant number, and press 'RETURN'.

### SELECTION 3

The programme goes to step 3000 and displays 'DISTANCE AND HEADING'. The Latitude and Longitude of the source station and then the Latitude and Longitude of the destination station are asked for.

The values given are checked for validity, and if any value is not valid, it is asked for again.

The Distance and Heading for both Short Path and Long Path are calculated using the Great Circle formulae.

The screen is cleared for output, then the Map References are restated for verification, and the Short Path Distance and Heading, then the Long Path Distance and Heading are displayed.

To return to the menu press 'RETURN', or if the desired function is known, then input the relevant number and press 'RETURN'.

### SELECTION 4

The programme goes to step 4000, clears the screen, and ends the programme.

**AR**

# LOADING UP ON 1.8 MEGAHERTZ

Lloyd Butler VK5BR
18 Ottawa Avenue, Panorama, SA, 5041

How does your transmitter load on 1.8MHz? Here are a few ideas on how to match into that odd length of wire on our lowest frequency band.

### INTRODUCTION

As amateurs, most of us are restricted to an antenna system which must fit into a standard house block. If we venture down to the medium frequency band on 1.8MHz, we are usually restricted to operating with whatever length of wire we can manage, connected with an earth or counterpoise system. Such a system, particularly if the wire is less than an electrical quarter wavelength, leads to a number of problems in coupling to the transmitter.

### ANTENNA EFFICIENCY

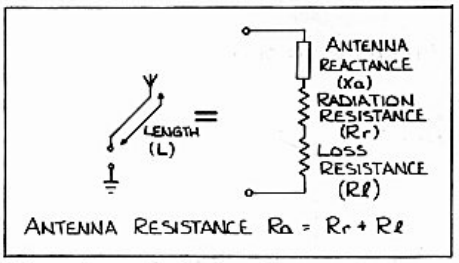



**Figure 1 — Equivalent Antenna Electrical Circuit**

The first problem is one of antenna efficiency. Referring to Figure 1, the antenna resistance (Ra) is the sum of radiation resistance (Rr) and the loss resistance (Rl) in the antenna system. Loss resistance is the result of a number of factors including leakage loss across insulators, the AC resistance of the antenna conductors and, most significant of all, the earth resistance. Also, not to be overlooked is the additional loss resistance of any loading inductance used in matching to the transmitter.

Antenna efficiency is calculated as follows:

$$\text{EFFICIENCY} = \frac{100\ Rr}{Rl + Rr}\ \%$$

Referring to the curve, Figure 2, radiation resistance falls rapidly as the antenna length is reduced, also reducing efficiency because a greater proportion of power is being absorbed in the loss resistance.

If antenna efficiency is to be optimised, the antenna should be as long as possible and earth resistance kept low, particularly if the antenna is shorter than a quarter wavelength. Wired radials, counterpoise or earth mat, are of value in reducing earth resistance.

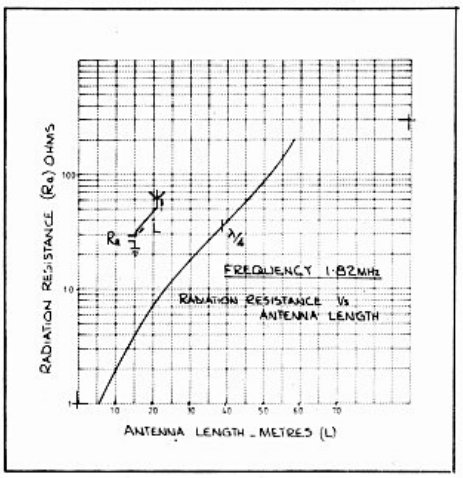



**Figure 2 — Radiation Resistance Vs Antenna Length**

Loss resistance can be checked by first measuring the antenna constants Ra (antenna resistance) and Xa (antenna reactance) with an impedance bridge. The measurements can be carried out quite well with the familiar noise bridge, used by many amateurs. If the bridge is calibrated directly in reactance at one frequency, do not overlook correction for 1.8MHz.

Now refer to Figure 2 to obtain the nominal radiation resistance (Rr) for the length of antenna in use. Subtract this value from Ra and the result is loss resistance (Rl). Antenna efficiency can be now calculated from the previous formula. If antenna efficiency is low, consideration might be given to improving the earth or increasing the antenna length. The constant Xa obtained will be considered later in the text.

## ANTENNA MATCHING

The second problem concerns the correct matching between the transmitter and antenna. Most modern transceivers are designed to operate into a 50 ohm resistance load and do not tolerate much divergence from that impedance. The antenna, however, has resistive and reactive components which vary with length. The resistance component has already been discussed. A typical example of the reactive component (Xa) varying as a function of length is shown in Figure 3.

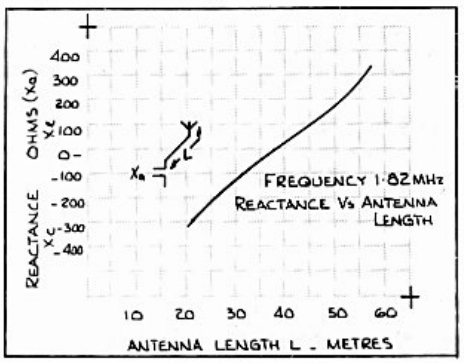



**Figure 3 — Antenna Reactance Vs Antenna Length**

Attempts to match the antenna to the transmitter using the typical antenna tuning unit (ATU) might not prove successful because of insufficient range in the ATU tuning capacitors. At 1.8MHz, loading capacitance needed could well be in the nano-farad regions, 1nF = 1000pF.

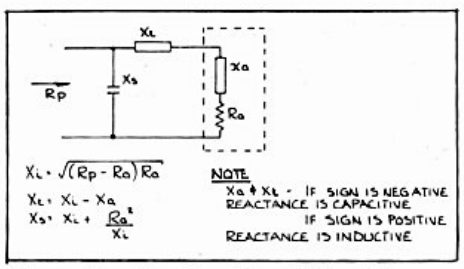



**Figure 4 — Loading Circuit Ra ⟨ Rp**

Loading can be better achieved by a network of fixed reactive components selected to form a correct match. To design a network, the antenna resistance (Ra) and the antenna reactance (Xa) must be first measured with the impedance bridge as discussed previously. Now proceed as follows:

If Ra is less than the desired load resistance (Rp) at the transmitter, use the circuit of Figure 4 and calculate thus . . .

i. Reactance $Xi = \sqrt{(Rp - Ra)\,Ra}$

ii. Calculate the series reactance

$Xt = Xi - Xa$

Note that if Xa is capacitive, its sign is negative and therefore its value is added to Xi.

If the resultant Xt is positive, Xt is inductive.
If the resultant Xt is negative, Xt is capacitive.

iii. Calculate the shunt capacitance (Xs)

$$Xs = Xi + \frac{Ra^2}{Xi}$$

If Ra is greater than the desired load resistance (Rp), use the circuit of Figure 5 and calculate thus:

i. Series reactance Xi = -Xa

That is — if Xa is inductive, Xi is made an equal value of capacitive reactance.

— if Xa is capacitive, Xi is made an equal value of inductive reactance.

ii. Calculate shunt capacitive reactance (Xs)

$$Xs = -\frac{Rp\,Ra^2}{\sqrt{Ra - Rp}}$$

iii. Calculate series inductance (Xt)

$$Xt = \frac{Xs\,Ra^2}{Ra^2 + Xs^2}$$

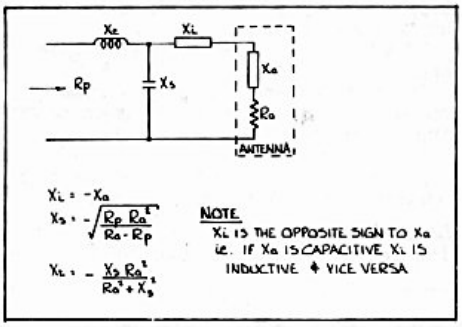



**Figure 5 — Loading Circuit Ra > Rp**

Fixed capacitance and inductance values are now calculated from the standard formulae:

$$C = \frac{1}{2\pi f Xc}$$

$$L = \frac{Xl}{2\pi f}$$

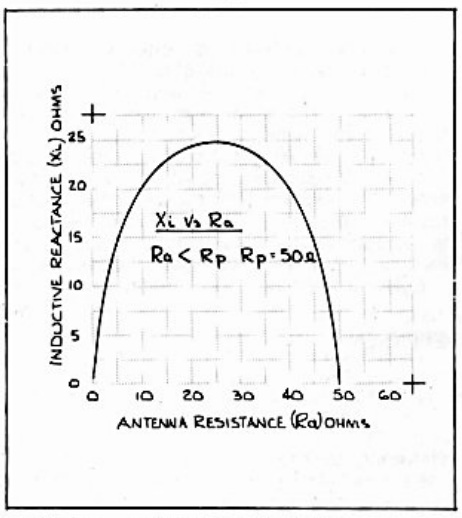



**Figure 6 — Xi Vs Ra (Ra ⟨ Rp)**

Taking the calculation further, specifically for 1.8MHz, we have worked out curves of network components assuming a transmitter load of 50 ohms. These curves can be used as follows:

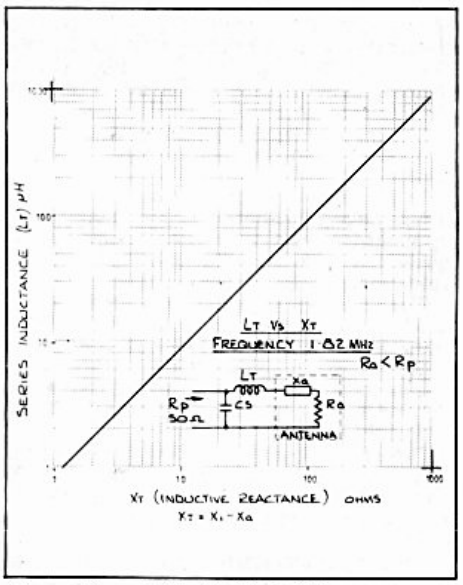



**Figure 7a — Lt Vs Xt (Ra ⟨ Rp)**

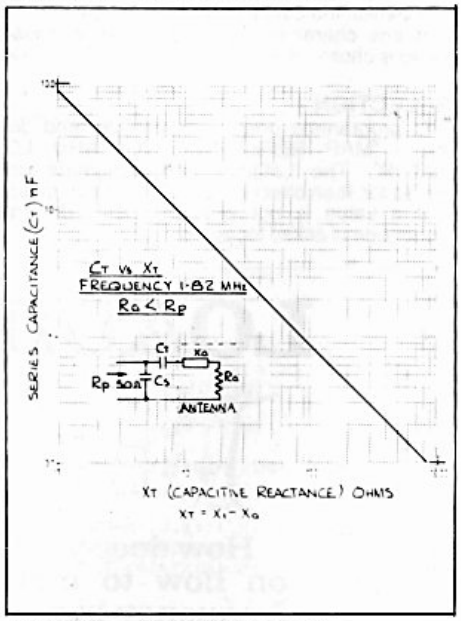



**Figure 7b — Ct Vs Xt (Ra ⟨ Rp)**

If Ra is less than 50 ohms, use the following procedure:

i. Refer to Figure 6 to obtain the value of Xi

ii. If Xa is capacitive, add its value to Xi to obtain Xt, an inductive reactance

iii. If Xa is inductive, subtract its value from Xi

If the result (Xt) is positive, Xt is inductive

If the result (Xt) is negative, Xt is capacitive

iv. Now find the value of series inductance (Lt) or series capacitance (Ct) from Xt in Figures 7a or 7b respectively

v. Finally, refer to Figure 8 to obtain the value of shunt capacitance (Cs)

If Ra is greater than 50 ohms, use the following procedure:

i. Refer to Figure 9 to obtain the value of series inductance (Lt) and shunt capacitance (Cs)

ii. If Xa is inductive, a series capacitor (Ci) is required and its value is selected from Figure 10a

iii. If Xa is capacitive, a series inductance (4) is required and its value is selected from Figure 10b

## NETWORK COMPONENTS

The network capacitors should have suffi-

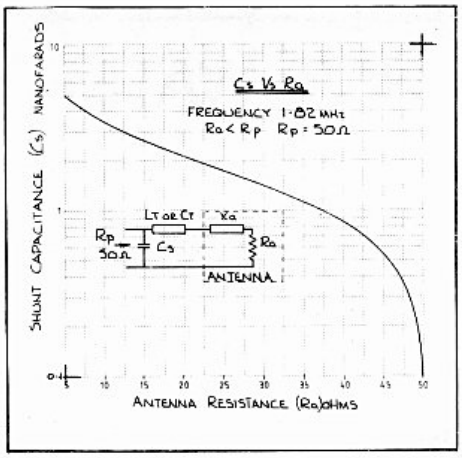



**Figure 8 — Ra < Rp. Shunt Capacitance Vs Antenna Resistance (Ra)**

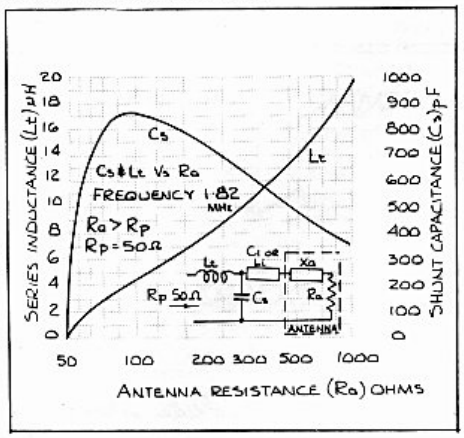



**Figure 9 — Lt and Cs Vs Ra (Ra > Rp)**

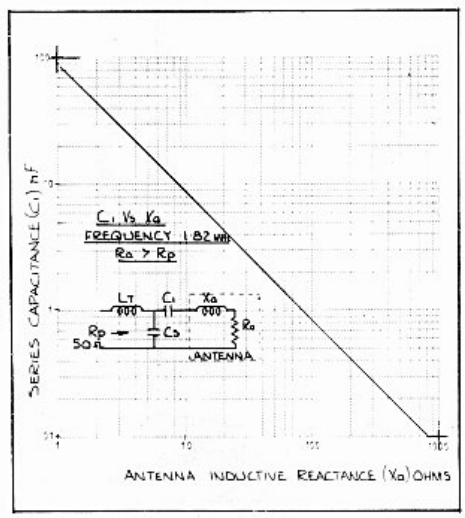



**Figure 10a — Ci Vs Xa (Ra > Rp)**

cient voltage and current rating. A power of 400W PEP across 50 ohms develops a peak voltage of 200 at a current of 200 V divided by its reactance. A good quality mica capacitor or a large air dielectric tuning capacitor could be suitable.

The series inductor should be made to have a high Q. Its loss resistance causes further power loss and if sufficient in value, compared to the antenna resistance (Ra), its value should be added to all calculations involving Ra. Network calculated values should then be re-assessed. To check the inductance and loss resistance, the noise bridge can again be utilised.

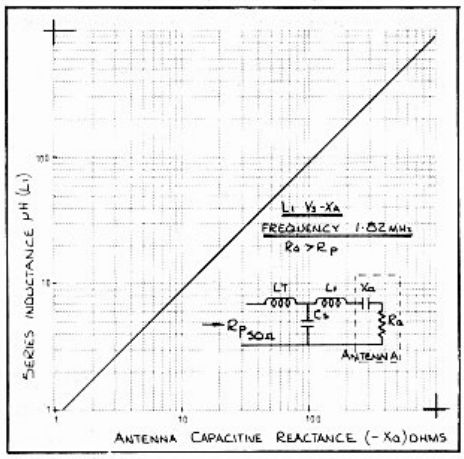



**Figure 10b — Li Vs -Xa (Ra > Rp)**

## TESTS

If everything has worked out right, the input of the network should look like a resistance equal to Rp (50 ohms) with negligible reactive component. This can be checked by the further use of our valuable noise bridge. If Rp value is correct, our transmitter can be connected and we are ready to transmit.

At this point, with the aid of an RF ammeter and the measured values of Ra and Rp, we can check our matching efficiency. Connect the RF ammeter in series with the transmitter output and, with the transmitter on tune, record the current (It). Reconnect the RF ammeter in series with the antenna and for the same transmitter setting, record antenna current (Ia).

Transmitter power output is equal to It Rp and radiated power is equal to Ia Rr.

Efficiency of the matching network is calculated as:

$$\frac{100\ Ia^2\ Ra}{It^2\ Rp} \quad \%$$

Efficiency of the whole aerial system is calculated as:

$$\frac{100\ Ia^2\ Rr}{It^2\ Rp} \quad \%$$

A possible inaccuracy is the value of Rr, taken from Figure 2 and based on antenna length. Its value for a given length could vary with other physical features of the antenna.

## TRANSMISSION LINE

Previous discussion has assumed that the transmitter is connected directly to the antenna tuning network within the radio shack. A disadvantage in doing this is that high RF current flows in the antenna and earth conductors within the shack, causing a high local RF field. Apart from its nuisance value, considerable radiated power could be wasted in absorption in the building structure.

To eliminate this problem, one might choose to place the tuning network external to the shack, directly between the antenna wire and earth or counterpoise and feed via a transmission line, such as a 50 ohm coaxial cable (refer Figure 11).

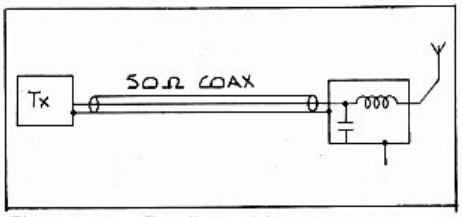



**Figure 11 — Feeding with Transmission Line**

A point worth noting is that you should not get too concerned at poor standing wave ratio (SWR) on the line at this frequency (1.8MHz). The loss in coaxial cable at 1.8MHz is quite low and even for an SWR of as high as 3:1, the net loss is a fraction of a dB per 100 feet. If the transmitter loading is satisfactory, precise SWR can be ignored.

In conclusion, it can be said that power radiated might not mean power in the direction you would like it to go and that is another subject. However, it is hoped that the information here will be of some help with those loading problems.

## APPENDIX 1

Expansion of Figure 4
Put Xi = Xt + Xa

$$\frac{i}{Ra + jXi} = \frac{Ra - jXi}{(Ra + jXi)(Ra - jXi)}$$

$$= \frac{Ra - jXi}{Ra^2 + Xi^2}$$

$$= \frac{Ra}{Ra^2 + Xi} - \frac{j\ Xi}{Ra^2 + Xi^2}$$

Hence R + jXi is equivalent to a parallel network:

Resistance component Rp =

$$\frac{Ra^2 + Xi^2}{Ra} \quad ....(1)$$

Inductive component

$$X2 + \frac{Ra^2 + Xi^2}{Xi} \quad ....(2)$$

From (1)

$$Xi^2 = \frac{RpRa - Ra}{\text{\& } Xi = \sqrt{(Rp-Ra)Ra}} \quad ....(3)$$

Xs is made resonant with Xi and Xs = -X2 ....(4)

From (2) and (3)

$$Xs = \frac{-(Ra^2 + Xi^2)}{Xi}$$

$$Xs = \frac{Xi + Ra^2}{Xi}$$

(capacitive) ....(5)

## APPENDIX 2

Expansion of Figure 5
Xa is cancelled by making Xi = Xa leaving Xs in parallel with Ra

Admittance

$$\frac{1}{-jXs} + \frac{1}{Ra} = \frac{Ra - jXs}{-jXsRa}$$

Thus the parallel result of Xs and Ra is impedance:

$$\frac{-jXsRa}{Ra - jXs} = \frac{-jXsRa\ (Ra + jXs)}{Ra^2 + Xs^2}$$

$$= \frac{RaXs^2 - jXsRa^2}{Ra^2 + Xs^2} \quad \text{....(1)}$$

The resistance component $Rp = \frac{RaXs}{Ra + Xs^2}$

hence

$$RaXs^2 = RpRa^2 + RpXs^2$$
$$RaXs^2 - RpXs^2 = RpRa^2$$
$$Xs^2 = \frac{RpRa^2}{Ra-Rp}$$

and $Xs = \frac{\sqrt{RpRa^2}}{\sqrt{Ra-Rp}}$ ....(2)

From (1), the reactive component $X2 = \frac{-jXsRa^2}{Ra^2 + Xs^2}$

Xt is made resonant with X2, i.e. $Xt = -X2$
hence $Xt = \frac{jXsRa^2}{Ra^2 + Xs^2}$

AR

# TRY THIS

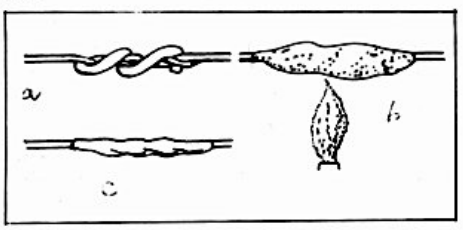
## EMERGENCY SOLDERING TIPS

The following technique can be used for soldering two wires together without using a soldering iron that can be used, for example, when repairing outside antennas.

The requirements are: *a short piece of aluminium foil, and a box of matches or a cigarette lighter.* The procedure as shown in figure 1 is: *(a) clean the wire ends, twist them together, and then wrap a short length of cored solder round them; (b) cover the whole with several layers of foil, close up the ends, and place a lighted match or lighter flame under the wrapped joint and move it slowly backwards and forwards; (c) allow a few seconds for the joint to cool, remove the foil and* "surprise yourself with a perfectly soldered joint". The real secret to success in this procedure lies in wrapping the foil on as tightly as possible with no air holes. The foil conducts heat to the joint as well as preventing oxidisation and the formation of soot on the joint, It also stops the molten solder from running away.

AR

Contributed by Ron Cook VK3AFW, from Rad Comm July 1982.




# CLANDESTINE HOT WATER

Reg Glanville VK2ELG

63 Buffalo Cresent, Thurgoona, NSW. 2640

**Since the publication of the two "Clandestine" articles, in March 1985 and February 1985 Amateur Radios, there have been suggestions that another article could be written, based on the circumstances which spawned the previous two, which were the result of activities in the prisoner of war camps at a sugar factory in south east Germany. Hence, Clandestine Mark Three.**

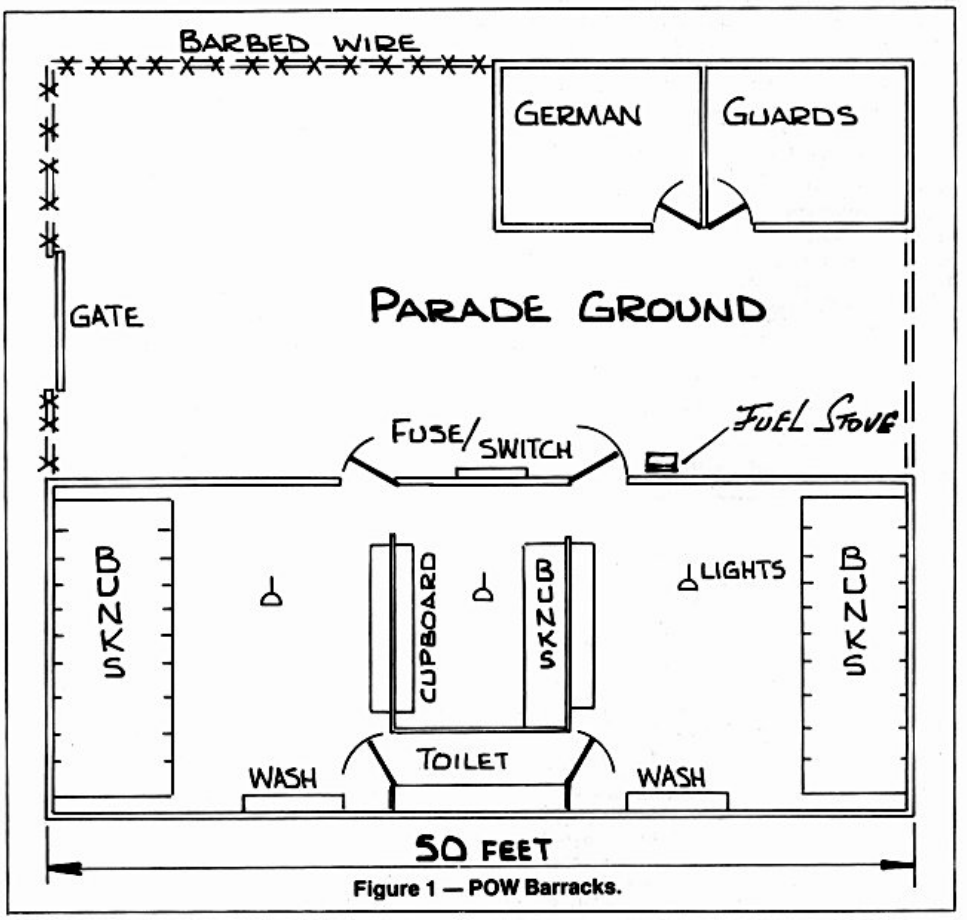



**Figure 1 — POW Barracks.**

These barracks were built circa 1939, as open fronted garages to house the pending arrival of the Volkswagon, the Peoples Car, for German workers who had ordered them. Delivery was to be made, when the cars were paid for. Payment was made by weekly deductions from the workers pay packets.

The onset of hostilities curtailed this ambitious scheme, but the vehicles subsequently proved a military boon, as the garages were simple to convert to POW barracks. The roof of the barracks was constructed of pine planks which were covered with heavy bituminous paper, single brick walls and a thin concrete floor. They were cold in winter and stifling in summer. The barbed-wire compound was locked at all times but the barracks' doors were open until 8 pm, for exercise, but NONE of us needed that!

Prisoners work was either out-of-doors, shovelling snow, sugar beet or coal or in a factory, which was humid with steam and heat. The work roster for most of the year was, 12 hours per day, 84 hours per seven day week. Consequently, the inmates were a somewhat dishevelled and languid lot by the end of the shift each day.

Outside the barracks, exposed to all weathers, was a coal fuelled hot plate, approximately 610 x 305m is size, which was the only means of heating food or drink. Despite rosters, the congestion around this stove between seven and eight in the evenings defies description, particularly when it was cold and wet. Consequently, many prisoners invariably retired after a cold supper, with cold feet.

Red Cross parcels, containing small quantities of tea, coffee, cocoa and powdered milk, arrived on a semi-regular basis. However, the limited stove access was an obstruction to the intended benefits of the drinks.

Shortly after the fabrication of the Shortwave Receiver, ( AR, March 1984) prisoners were each issued with an enamelled metal can with a tapered top, lid and carry handle. Capacity was about one and a half pints (about three-quarters of a litre), with the primary function being for the daily factory ration of "ERSATZ" coffee. A friend suggested, "Sparks, (this was my nick-name in the camp), now that we have these cans, could you devise a hot water heater for use after our eight o'clock curfew?"

Much had been learned from 'Operation Receiver', and I was now aware of the possibilities, and pitfalls, of extra-curricular activities so decided to investigate the probabilities of electrically heating water. NO PROBLEMS? ?

## CONSERVATION OF ENERGY

Briefly the factors were, vigilance of the order necessary during the construction of the radio, and later, the compass, could be somewhat relaxed as contravention of German internal propaganda security and escape would not be involved. The guards would not be unduly interested as maintenance of the party, intact and working, was their role. The factory para-political management hierarchy would be the stumbling block as the conservation of energy, particularly electrical, was almost of fetish proportions. Power outlets were rare — none at all in our barracks and light points were limited and of low wattage. I hence decided to build an immersion heater, designed to drop into our cans, powered from one of the Edison screw base (ESB) light sockets.

Friends were sent to surreptitiously check factory salvage bins for light sockets, light globes, flex, stiff wire to support an element and, most importantly, heater element wire with a profiled ceramic former.

The latter proved a problem. A fortnight elapsed before a broken element was located. Alas, how much was missing? What was the remaining resistance? Without tools or instruments the formula would again be trial and error.

Lighting was controlled by the guards at an external switch box which held the sole fuse, no internal switches. Lights out was 10pm except for a single toilet light, which remained on all night. The barracks were locked and barred at 8pm, so clandestine activities had to be carried out in these two hours.

Each area of the barracks was serviced by only one light, which we could not afford to lose, so the first need was an ESB double adapter, one outlet for the globe and the other for the heater. As could be anticipated, all manner of guile failed to produce one of these, so it was into the junk box. Two ESB female sockets were wired in parallel to a globe male thread, taking care that the exposed external threads were isolated from the neutral.

I worked in the factory's electrical workshop charging batteries, painting switch boxes, etc. Soldering jobs were only possible when the two German electricians, friendly types, were absent.

## WORRYING TIME

All testing of the element had to be done immersed. Easy you say! Try it sometime. The power could not be switched off and it was difficult to screw in the connection whilst standing on a flimsy table. As the wires to the element were exposed, this caused current leakage through the water and enamel defects and partially charged the enamel can. Also, not blowing the sole fuse was a top priority.

The 240VAC supply (there was also 110VAC and 210VDC in parts of Germany) to our barracks was via a heavy gauge copper wire, which continued on to the guards quarters. The internal wiring in the barracks was only light gauge aluminium. Therefore, the 'operation heater' voltage drop effect should be less noticeable on the guards lights than in the barracks. This was a bonus, as the variation in light intensity was the only indication we would have of the heaters current consumption. Theoretically, the 20 amp fuse should cope with 4000 watts, but the aluminium wiring would not.

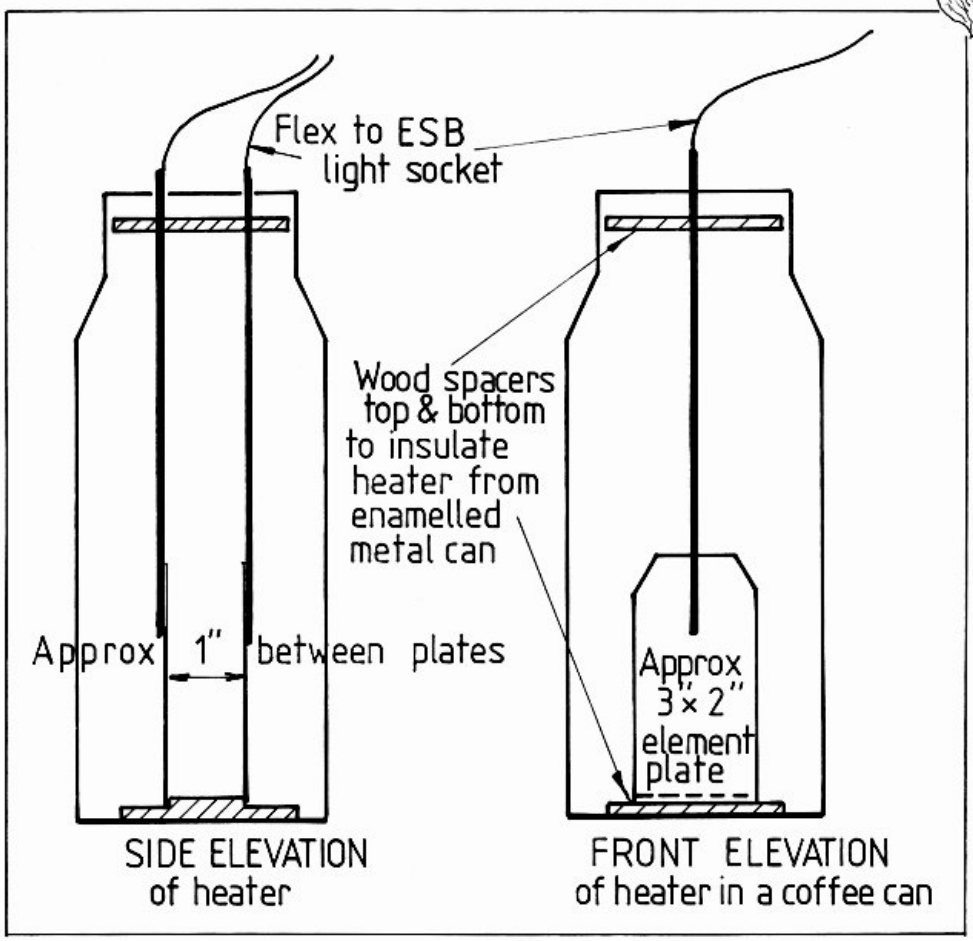



**Figure 2 — Side Elevation.**

**Figure 3 — Front Elevation of the Heater positioned in the Coffee Can.**

Testing heater Mk1 produced a dramatic drop in the lights in our barracks, so obviously the broken junk element was too short. (Next day one of the guards mentioned the drop in the lights and I suggested it was possibly a momentary drop in RPM of the steam turbine driven alternator, that supplemented the factories power.

A week later another short section of element was found, but over several nights of painstaking work, the old brittle wires refused to be joined. By now, optimistic members of our party could 'taste their hot cuppa' and subtle pressure on 'Sparks' to complete the project increased. However, another month of searching still failed to locate a suitable element.

I then vaguely remembered the use of two metal plates, either as a water heater or variable resistance, that I had seen in Australia. This led me to a completely different approach.

I had no idea of the optimum area or spacing between the plates necessary for our needs, other than the dimension limitations imposed by the coffee pot neck. Because of the limitations of usable current, I decided to commence with small plates, approximately 1x.75 inches (25x19mm) and spaced 1.5 inches (38mm) apart.

Once again the scrap bins arose to the allied cause and yielded more battered copper sheet, which was duly flattened, shaped and soldered to the stiff wires used previously in the Mk 1 version. My New Zealand friend, a worker in the carpenter's shop, cut a spacer from pine wood. See Figure 2.

When tested, this version proved inefficient — after 30 minutes only a slight water temperature increase was discernible and, there was no visible lighting drop. A wattage increase was necessary so, back to the drawing board. Slightly larger plates were cut and fitted.

Of course, practicality dictated that we should have commenced with large plates and progressively reduced their area to save the necessity to return to the workshop to cut and solder larger plates. However, I was not prepared to risk using excessive current initially because of the predictable repercussions.

Two further increases in plate size and a decrease in spacing spanned many days because of lack of convenient periods in the workshop. Finally, Eureka! After about 25 minutes the water was hot, about 80 degrees, accompanied by only a minor drop in lights. Great! We were there, now only the trifling last step to boiling point.

## ALMOST THERE!

Just prior to boiling, the water turbulence in the container rose and the lights dimmed — what now? Several repeat tests verified this behavior so, obviously, under these specific conditions, the water resistance to AC was a converse situation. Increase in temperature caused a resistance decrease but with an increase in current flow.

It was now relatively easy to reduce the plate area by folding back a 3/16th inch (5mm) strip down one edge of each plate with the two folds

made outwards to avoid any reduction in plate spacing.

This version appeared to be the best compromise — a slight increase in the time required to reach boiling point and a decrease in the lighting intensity drop; although the latter still caused some concern at the point of boiling. This was eventually overcome by slowly lifting the heater clear of the water at the first sign of the lights dropping.

## SUCCESS

During the following few nights, an operational procedure for water boiling evolved. Immediately our doors were locked at 8pm, our makeshift double adaptor was screwed into the light socket, which was not visible outside from the two small windows. The globe was replaced in one outlet, the heater in the other, exposed and alive. The heater was held by the flex and gently lowered into the filled can, taking particular care not to allow the element wire to short against the can. The guards were not noted for their alacrity in replacing the fuse if it blew. When positioned in the can, the upper wood spacer prevented a short circuit.

The damp concrete floor was a permanent earth and during the heating process, the can was partially charged — the operator adopting a permanent state of qui vive. A small price to pay for a hot drink? ?

The entire operation was quite hazardous and normally would not have been perservered with but, the relative psychological and physical well-being values of a regular hot drink, procured under clandestine conditions, amply compensated the risk. Personal safety was not highly rated.

The coffee cans were five cup capacity, so the party rostered themselves into groups of five and each group rotated in sequence nightly. The groups were always ready and waiting.

During the two hours available between lock-up and lights out five cans could be brought close to boiling, hence 25 cups for 30 guests.

The electrical characteristics of the heater were now relatively stable and predictable, with only an occasional deviation stemming from an operators error. After some weeks of basking in our new found, up-market living standard, an abrupt change in heater characteristics occurred. An increase in water turbulence was visible and current drain increased, noticeable by a drop in the light. Either the voltage or spacing between plates had altered and there was no change in the wooden table that isolated the can from the concrete floor. Where do we go from here?

Then an enlightening remark from one of the inmates that "It must be the water Sparks, the tea tastes lousy!" His nationality had been tea connoisseurs for over 300 years.

That winter, the nightly temperatures had dropped to about -10 degrees Celsius and the water reticulation to the barracks had fractured. We had to carry water from a well, attained by an Armstrong powered pump. Could the status quo have been altered by this water change?

That evening after work, a can of the usual water was brought from the factory and magically the heater reverted to its former behaviour. Therefore the well water must have been mineralised to the extent that its resistance was lowered and its heating design characteristics were disturbed.

## FINALE

The heater was in use for 18 months, which made possible, over 7000 cups of tea, coffee and cocoa. This generated a morale boost beyond all proportion to the simplicity of the device. The arrival of the Russians on the German eastern border terminated, after four years, this rather debilitating and neurosis prone existence.

Electricity is presumed, and expected, to be ever available to serve man's needs, irrespective of location or circumstance. Pre-war radio and electrical experience, once again made it possible to harness this energy to, at least, slightly alleviate the depressed conditions for 30 people.

To obviate a possibility of the 'Clandestine' theme becoming hackneyed, this is a definite FINAL! To minimise connotations of egotism, endeavours were made over the three articles to use second or third person grammatical form, but it seemed to cause a loss of realism.

It is not recommended that 'home brewers' see this device as a low cost water heater — it is the absolute antithesis of safety.

**AR**

| TEMP RISE | PLATE SIZE 1.5"x1.25" | PLATE SIZE 3.25'x2' |
|---|---|---|
| 10-20 deg C | 18mins | 9mins |
| 20-30 deg C | 14mins | 8mins |
| 30-40 deg C | 8mins | 6mins |
| 40-50 deg C | 4mins | 3mins |
| 50-60 deg C | 3mins | 1min |
| 60-70 deg C | 2.5mins | .5min |
| 70-80 deg C | 2mins | .25min |
| 80-90 deg C | 1.5mins | 12secs |
| 90-99 deg C | 1min | 8secs |
| **TOTAL** | **54mins** | **28mins** |

**Water Temperature Rise related to approximate Elapsed Time with the Plates one inch apart.**

The approximate resistance between the plates with water at 10 degrees Celsius was 1150 ohms and at 95 degrees Celsius, 200 ohms.

Prior to producing this article, a quirk of curiosity prompted the writer to carry out a re-enactment in his workshop, to substantiate the heaters characteristics, which were dependant on a nebulous memory. Taken for granted, workshop facilities, ie: thermometer, multimeter, clock with a second hand, etc, were a dramatic contrast to the vicissitudes of 1943!

The table above summarises the findings — note the rapid and simultaneous temperature increase and time span decrease above 70 degrees — the problem phenomenon in the barracks.

One experiment was made with the plate spacing reduced to .75 inch but this had to be curtailed above 80 degrees because of the massive water turbulence, apparently caused by steam pockets between the plates. Once aluminium plates were used which formed an insulating film,obviously an electro-chemical reaction.

# LET'S LOOK BACK

Now that the Bi-centennial year is fast approaching, and thoughts are being given to ways and means by which the amateurs of Australia may celebrate this important occasion, it is fitting perhaps, to just look back to the 150th year.

On that occasion, the IRE of Australia donated a most impressive trophy to the WIA, to go to the person *"for the best work done in making known internationally the World Radio Convention and Anniversary Celebrations"*.

A DX contest was organised for Australian amateurs and at the 14th Annual Convention of the WIA, Sir Ernest Fisk announced that Mr D H Fisher of York Street, Launceston was the winner.

The plaque is of bronze, mounted on polished wood — a very impressive trophy, indeed.

The equipment used by the late Doug Fisher VK7AB, was naturally home-brew. The transmitter was AM with a 35T in the final. The receiver was also home-brew — a well built superhet, the 'Cernutt' nine valve, designed by W6BAY. A photograph of the receiver is in 'Jones Handbook' of 1937/38. The antenna was a 138 feet (41m) flat top and a 'loop' on 10 metres. Doug's widow Val says it was the 10 metre operation that won the day for Doug.

The trophy was presented at the Annual Dinner, Hobart in 1938 by Sir Ernest Fisk.

Contributed by S W 'Bill' Carter VK7AK

**AR**

## Just when you thought you'd seen it all . . . .

# Latest Generation Receivers from Yaesu!


## FRG9600 Scanner

Never Before! A scanning receiver that has so many features, offers so much. And it's absolutely ideal for the amateur, too! It offers **continuous coverage** between 60 and 905MHz, in all modes (SSB up to 460MHz), with FM and AM in both wide and narrow bandwidth. But that's not all:

You get 100 keypad-programmable memory channels, full rotary dial tuning as well as push-button tuning, fully programmable scanning in various modes . . . and much, much more.

PLUS it's a CAT unit: with the optional interface you can control its operation from most micros! Virtually unlimited customised control functions in software are possible!

Impressed? Not half as impressed as you will be with one in your shack!

**Specifications:**

Range: 60 — 905MHz (SSB 60 — 460MHz)
Modes (3dB bandwidth)
FM (N): 15kHz 0.5uV Sens (12dB SINAD)
FM (W): 180kHz 1.0uV Sens (12dB SINAD)
AM (N): 2.4kHz 1.0uV Sens (10dB S+N/N)
AM (W): 6kHz 1.5uV Sens (10dB S+N/N)
SSB : 2.4kHz 1.0uV Sens (10dB S+N/N)

| | |
|---|---|
| Conversion: | Triple for FM (N) AM & SSB, Double for FM(W) |
| IFs: | 45.75MHz, 10.7MHz and 455kHz |
| Image rejection: | 60-460MHz — 50dB typical<br>460-905MHz — 40dB typical |
| Memory Channels: | 100 |
| Power Supply: | 12-15V DC 550mA (lithium cell back-up) |

**LIMITED STOCK!** (Includes power supply) **$799**
Cat D-2825

**Orders taken now at your nearest DSE store**

**DICK SMITH ELECTRONICS**
PTY LTD

B-052

## FRG8800 Receiver


What about HF, you ask?
No worries. Yaesu design engineers have excelled themselves yet again!

- General coverage from 150kHz to 30MHz
- All mode, including AM wide and narrow and FM narrow
- 12 internal memories (push-button) with scanning functions
- Selectable AGC rates, noise blanking widths & tuning rates
- Dual digital clocks (great for different time zones)

And so much more!

PLUS, it's also a CAT system: add a microcomputer and the optional interface and you can transfer function to your micro!

And even more: with the optional VHF coverter (fits completely inside) you also get 118 - 174MHz.

It also uses the '7700' series of accessories: active antenna, and antenna tuner.

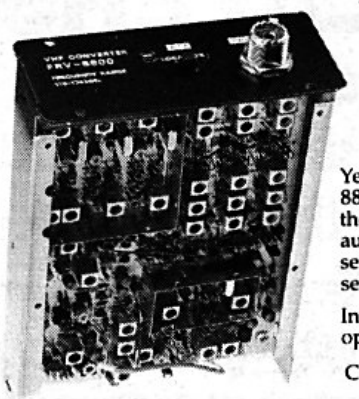
**Specifications:**

| | |
|---|---|
| Modes: | AM, SSB & CW in both wide and narrow; FM (N) |
| Sensitivity: | AM, SSB & CW: 10dB or better (S+N/N)<br>FM (N): 20dB or better (S+N/N) |
| Selectivity: | AM (W) 6kHz (−6dB), 15kHz (−50dB)<br>AM (N), SSB, CW 2.7kHz (−6dB), 8kHz (−50dB)<br>FM (N) 12.5kHz (−6dB), 30kHz (−40dB) |
| Antenna Imp: | 50 ohms and 500 ohms (VHF conv 50 ohms) |
| Power: | 240V AC |

Cat D-2820

**Alternative:** FRG-8800 SW — 2MHz to 30 MHz range, otherwise identical **$829.00**
Cat D-2821

**$899**
**LIMITED STOCK!**




## Optional VHF Converter

Yes! 118-174MHz from your FRG-8800. And it fits completely inside the set — operation is completely automatic. Full dial or pushbutton selection, same features as standard set.

Incredible versatility - and full CAT operation too.

Cat D-2823 **$189**

# MEXICO QUAKE DISASTER AND AMATEUR RADIO

Jim Linton VK3PC
4 Ansett Crescent, Forest Hill, Vic. 3131

*An earthquake measuring 8.1 on the Ritcher Scale sent shock waves through the City of Mexico causing death, injury and damage, on the 19th September 1985. The actual death toll may never be known, but estimates ranged from 5 000 upwards, with 40 000 injured.*

The heavily populated city was isolated because major communications centres were knocked out. Mexican amateurs were the first to give details of the quake, via the United States.

While horrifying accounts of the earthquake became known, Sam Voron VI2BVS, was operating portable in Sydney suburban Willoughby Park, as a public relations exercise for amateur radio. Sam, with a radio display station as part of the Willoughby Fair, Carnival 85 and IYY celebration, planned just to do as he had on numerous other occasions, *expose the general public to the hobby of amateur radio.*

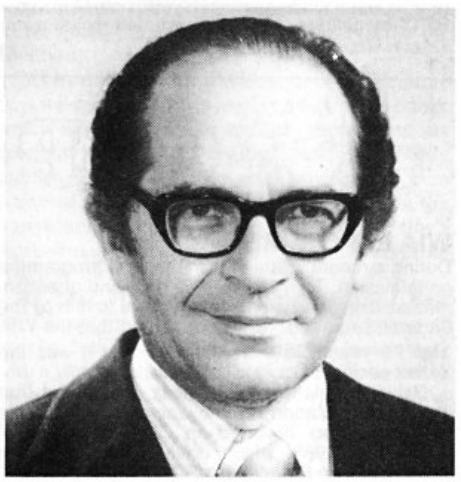
The Australian Traffic Net (ATN) Co-ordinator was told by someone visiting the Fair about news reports of US radio amateurs being the only link Mexico had with the outside world after the quake. Sam, with a group of helpers, found himself ideally situated for public access should there be a demand for third party traffic.

After the news media was told, on Saturday, 21st September, about radio amateurs being able to send welfare messages to Mexico, many distraught Mexicans began arriving at Willoughby Park. By 9pm, Sydney's radio and television stations had carried news of what amateur radio was doing.

A Mexican, Jose de la Vega travelled from Wollongong to Willoughby Park to see if he could help, and Sam explained that a third party agreement with Mexico could be useful.

Mexico was one of a number of countries the WIA had sought, through DOC, to have formal TPT agreements with Australia, but it had not responded to the request. Traffic for Mexico could however be routed via the USA or Canada, both of whom had TPT agreements with Australia and Mexico.

Jose, together with Martin VK2PJW, went to the Mexican Consulate to discuss the matter, and the Mexican Ambassador contacted a senior DOC official, who granted TPT approval for the disaster.



HE, the Ambassador of Mexico, Dr Jesus F Domene V.


Photograph courtesy North Shore Advocate

**Sam VK2BVS, sends a welfare message to Mexico for Julia McLaren, during the Earthquake Disaster**

On learning of the IPI approval, Sam sent a priority message from Mr Jesus Domene, Mexican Ambassador, to television channel 13, in Mexico City — the only station on the air. The message read: *"All Mexicans that have relatives in Australia can send messages through amateur radio operators. Permission granted 21st September 1985, at 1300UTC for Third Party Traffic between Mexican and Australian amateur radio stations"*.

Next day, word came back that television was being used as a notice board and the Ambassador's message was being periodically flashed on the screen.

News of the VK/XE TPT agreement was phoned to WIA Sunday morning broadcasts from the WIA ACT Division following a request from DOC. By this time the ATN was in full operation with stations in, at least, VKs 1, 2, 3, 6, and 7. Some of the stations included VKs 2BBT, 2ATZ (Westlakes Radio Club), 3HP, 3CUG, 3CKK, 6MQ, 6AGG, and 7RH (apologies to other who participated, or offered help, but whose call signs are omitted).

Telephone numbers of participating stations, along with a story of their community service involvement, was given to the news media in Melbourne. The media, in turn, were clamouring for more details about amateur radio's involvement — it gave radio, television, and newspapers a local angle on an overseas disaster.

Radio news bulletins throughout Australia carried the story, and in Melbourne, at least three TV stations had it in the evening news services.

Meanwhile, Sam had a queue of people consoling each other, as they waited to fill in Amateur Radiogram forms for messages to their loved ones, in Mexico. The Mexican Consulate was directing people, wanting to get a message to Mexico, to Willoughby Park.

Telephones were ringing hot throughout Australia in the shacks of participating radio amateurs. One difficulty they faced was in trying to understand the callers, both due to their emotion-filled voices and Spanish accents.

**Amateur Radiogram**

Amateur Radio Operators are hobbyists developing their personal skills in the many facets of radio communications, electronic experimentation, world wide friendship on radio, public service, amateur television, facsimile, radio teletype, slow scan world wide two way TV, orbiting amateur radio satellites and morse code as well as voice long distance communications.

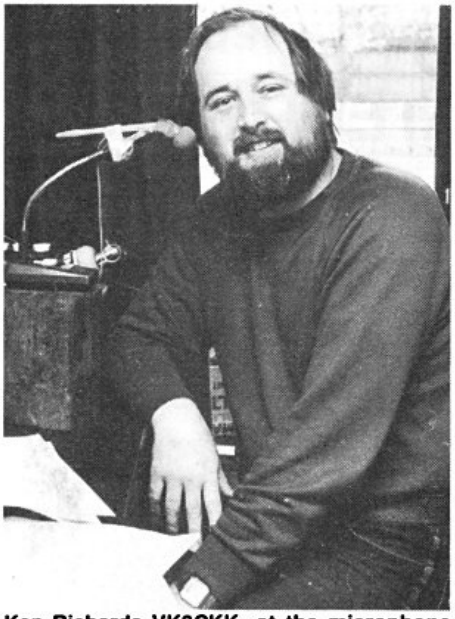
Your involvement is helping Australian radio enthusiasts develop their nationwide and international message handling skills. When the public needs help Amateur Radio Operators are there.

| No | PRECEDENCE | HX | ORIGINATOR | CHECK | PLACE OF ORIGIN | TIME | DATE |
|---|---|---|---|---|---|---|---|
| TO | | | | | RECEIVED AT AMATEUR STATION<br>OWNER TEL<br>ADDRESS | | |
| | | | | | TEL No. | | |

5 10 15 20 25 30 35 40

| | RECEIVED FROM | SENT TO | SIGNATORY'S NAME | PHONE No |
|---|---|---|---|---|
| STATION | | | | |
| TIME | | | | |
| DATE | | | | |
| BAND | | | | |

This message is handled free of charge by a licenced Amateur Radio Operator. As such messages are handled solely for the pleasure of operating, no compensation, direct or indirect, paid or promised, can be accepted by a station owner. For the same reason, neither eventual delivery nor accuracy of message can be guaranteed.



**Ken Richards VK3CKK, at the microphone during his marathon effort to help Australians contact relatives and friends in devastated Mexico City.**
Photograph courtesy Knox-Sherbrooke News

With the considerable number of messages for Mexico being put in at the Australian Traffic Net, poor propagation to the USA, and a growing backlog of Amateur Radiograms, the WIA Victorian President, Jim Linton became concerned.

On the Monday he contacted Telecom to see if three co-ordinating radio amateurs could have free International Subscriber Dialing (ISD) from their phones, so they could pass messages direct to US radio amateurs. Help of the Australian Red Cross was also enlisted, to approach the Overseas Telecommunications Commission (OTC), to obtain free ISD access.

Both Telecom and OTC responded favourably, and the first to use the free overseas calls was Ken VK3CKK, on Tuesday, 24th September. Between 1400 and 1700UTC (midnight and 3am local time) he passed 90 messages to Dick Hoppe N5T, in New Mexico, USA. Ken had help from a group called the Knox Community Volunteers, who manned his phone, and the two additional phones installed by Telecom.

Members of the Eastern and Mountain District Radio Club, including John VK3DP, Gwen VK3DYL, and David VK3UR, assisted Ken and put up a better 80 metre dipole for use on the ATN's 80 metre frequency.

Ken originated about 150 messages to Mexico received from throughout Australia.

A second radio amateur to be given free ISD access was Fred VK2DZL, who collected 120 messages from Sam, and passed them, via the telephone, to Bill Smith W7GHT, in Idaho.

The third was Alan VK3CUG, at Barkers Creek, central Victoria, who passed some 60 messages to Troy Grimshore K7OVK, in Oregon. Alan also managed, on air, to pass about 20 pieces of traffic to KH6SP, at Pearl Harbour, who then relayed them to the US West Coast National Traffic System Net.

Alan had been involved in the operation from the Saturday evening, when the first messages for Mexico were received on the ATN. His telephone rang hot with calls from people throughout Australia, all wanting to get a message to Mexico, and also the news media seeking information on his activity.

Later, due to continuing poor propagation, messages from Mexico City were received from the USA using the ISD telephone facility provided to the three participating radio amateurs.

During the telephone calls it was learned that just one US radio amateur had reported handling 4 000 welfare messages for Mexico. Another snippet of information was that the US State Department had airlifted five fully equipped radio amateurs into Mexico City to help with emergency communications.

Overall, an estimated 600 messages for Mexico were passed, via the ATN. The community service it provided received unprecedented media publicity, and left a good and lasting impression about the hobby with the authorities, and the general public.

On 24th September, the Mexican Ambassador, Dr J F Domene V., sent a letter of appreciation to the President of the WIA, on behalf of all Mexicans. The letter stated:

*In the name of the Embassy of Mexico, and all the Mexicans in Australia, I wish to express to you, and by your kind mediation, to all the amateur radio operators in Australia, our most grateful thanks for the time and effort they so generously gave in aid of the relatives and friends of the people of Mexico City, who were left without means of communication following the tragic earthquake of 20th September. Your kindness and solidarity will not be forgotten.*

**AR**

## LETTERS OF APPRECIATION

The following letters were received by Sam Voron VK2BVS.

Council at its meeting on 23rd September 1985, received a Mayoral Minute on the tireless efforts of the Willoughby Amateur Radio Group in assisting families and friends make contact with Mexico City in the wake of the recent tragic earthquakes.

Council subsequently resolved to convey its congratulations and thanks to you and the members of the Willoughby Amateur Radio Group for your dedication to the services of others during this emergency.

It gives me great pleasure to convey Council's decision to you and to also add my personal thanks for the compassion you have shown in assisting numerous Mexican families during their time of great emotional stress.

Yours faithfully,

**A J Payne,**
**TOWN CLERK,**
**The Council of the Municipality of Willoughby.**

Once we have been able to obtain information about almost the total number of personas who have consulted this Consulate-General (Mexicans and Australians), I wish to express to you our recognition for your valuable assistance which came just in time, specially during the first most tragic days.

Thank you very much.

Yours sincerely,

**Hugo Diaz-Thome,**
**Consul-General of Mexico.**
**AR**

We sincerely thank Sam Voron and his friends for the wonderful support and hard work following the Mexico City Earthquakes.

It was an anxious time for the Mexican Community in Australia, and we appreciate all the time spent making contact with Mexico.

Yours sincerely,

**Alfonso and Louise Cardenas,**
**27 Greenhill Crescent,**
**Saint Ives, NSW. 2075.**
**AR**

## BILL HAS A GO AT RTTY

Ted Holmes VK3DEH
20 Edmunds Street, Parkdale, Vic. 3195

Building a RTTY modem proved to be a little beyond Bill Blitheringtwit, mainly because it was not possible for him to utilise anything suitable from his vast store of junk. He figured that if he had to go and buy all sorts of parts he might just as well buy a ready made modem. Better be safe than sorry — an attitude unique to him.

Now the modem was connected in position to his dipole and into the Model 100, which was still sitting on the floor. From somewhere or other he had managed to scrounge a reel of teleprinter paper. An earlier experiment with some of his wife's kitchen paper towels had proved to be a dismal failure. It had provided some temporary entertainment when it had come apart in the machine and required picking out, fragment by fragment, with tweezers. However, it now really looked as though Bill was at last in business.

He turned the machine on and it gave out a satisfying humming sound. Then he turned on his FT 101E and tuned around on 40 metres. He was in luck. somebody was warbling away and Bill fiddled about until little lights on the modem began to blink. It gave him quite a start when the Model 100 suddenly started chattering away.

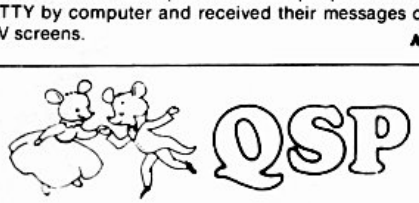
Bill was delighted. At last he had got something to work! He realised what Columbus must have felt like when he discovered America. The printer reached the end of its line and stayed at one spot, busily hammering away at the edge of the paper, making a sort of black blob.

What was this? Bill was mystified. There had to be something wrong with the machine. He kicked it but the thing still hammered away in one spot. Then, just as suddenly as it had started, the warbling sound ceased and was replaced by a similar sound, somewhat lower in pitch. Bill felt triumphant. He knew what that was! He adjusted the frequency on the FT 101E and once more the Model 100 began to tap happily away. However, when it reached the end of the line it made the same sort of blob again.

There had to be something wrong with the dratted thing. The message up to the blob seemed to have been typed by somebody using his feet, but, apart from that, it had a slight resemblance to english. But the blob business puzzled Bill. He grabbed a screwdriver and started poking, ending up dropping the tool into the machine's bowels. That finished his first attempt at RTTY, as, by now he was slightly bored by the whole business. Leaving the screwdriver still in the machine, he ripped open a beer can and drank thoughtfully.

Nobody had told him about the lack of carriage returns sometimes experienced with people who sent RTTY by computer and received their messages on TV screens.

**AR**




## WIA EXPOSURE

During a recent "Sale of the Century" programme on television, Tony Barber, the host and question-master, displayed a WIA badge, sent to him by the Federal Secretary. Tony commented that the WIA was 75 years old this year, and that it was the oldest society of its kind in the world.

Delvene Delaney, his hostess, mentioned that the film star Marlon Brando was an amateur. This fact was also reported in '73' magazine of September 1985, which gave a call listing as follows: *Martin Brancheaux FO0GJ.*

The "Sale of the Century" programme was good exposure for the WIA and amateur radio.

# AUSTRALIAN RADIO JOURNALS BEFORE 1939 — A SURVEY

Chris Long,

6 Torring Road, East Hawthorn, Vic. 3123

***Historical matters have come to the fore during the WIA's current 75th Anniversary celebrations. The July issue of Amateur Radio contained a good deal of historical writing, though no references were given to the sources of the material. Such facts and dates are unsubstantiated. Anecdotal material passed on through the spoken word is valuable for fleshing out the dry bones of history, but definitive facts and dates can only be positively ascertained with reference to written or printed records.***

*In July's issue of Amateur Radio Jim Linton gave us an outline of G W Selby's work, but I question the source of some of the dates he provides. Selby himself did not claim to be working with wireless telegraphy earlier than 1897, according to the RADIO EXPERIMENTER article published in February 1924. An alleged reference to an article on Selby's wireless experiments in THE AUSTRALASIAN of 22nd November 1897 is plainly wrong, as that newspaper was not published on that date. A search of the newspaper for the whole of November and December of 1897 failed to find any reference to Selby. Does any evidence exist to confirm Jim's suggestion that.*

"In 1896 he sent a wireless telegraphy message from Brighton to Caulfield?"

Further research is certainly necessary on this matter. It would be nice to say that Selby, a Victorian experimenter, was the first Australian radio amateur, but proof of such a claim is necessary first.

During my recent appointment as the Acting Curator of Electronics at the Museum of Victoria, I had access to the closed storage stacks of the State Library of Victoria. I took advantage of this excellent opportunity to compile a rough list of local radio literature in the pre-war years, up to 1939. During the 1920s and 30s, a surprising number of local radio magazines were published and preserved in the State Library. Most of these journals have been forgotten. A layer of dust confirms that few have been used for research in recent times. I hope that this article will rectify the situation.

Before the First World War, most of the literature on wireless telegraphy was only available in books which were difficult to obtain. There were few specialist journals on the subject, and none locally published. References to local experiments were scattered through newspapers, or reported in the transactions of engineering societies. G W Selby's work can be found in print in the Melbourne ARGUS of 29th April 1899.

By 1900, H W Jenvey of the Victorian Post Office, as chief telegraphist, began a series of experiments into wireless telegraphy, particularly with a view to its practical application. He had been the author of an exhaustive two-volume book on local telegraph systems in the early 1890s, which was the standard Australian text of its time. Assisted by M H Fitzgerald and F W Chambers, he initially set up stations at the Melbourne Observatory and the Melbourne GPO. A circuit


**Pat Wilson, the Empire's champion baby, listens to bedtime stories in 1925.**

diagram of one of these stations, dated September 1900, is held by the manuscripts section of the La Trobe Library. The Museum of Victoria also holds a telegram sent from Chambers in Doncaster to Jenvey in the city, confirming reception of wireless telegraph messages during the latter part of 1900.

In May 1901, Jenvey set up a temporary station at Elwood to communicate with the Duke of York's escort ship, St George, during the Royal Visit for the opening of Australia's first Federal Parliament in Melbourne. Lieutenant Trousdale controlled the Marconi equipment aboard the escort. The complete Morse tape record of the Jenvey/Trousdale communication of 18th May 1901 is held in the La Trobe Library's manuscripts section in Melbourne. About six weeks later in Hobart, Trousdale conducted a similar experiment with the pioneer Tasmanian amateur F W 'Pop' Medhurst. These were the first confirmed ship-to-shore wireless communications in Australia, though there are rumours of earlier tests conducted by G W Selby to the HMVS Cerberus which have not been confirmed.

Jenvey's wireless telegraph experiments were cut short by a new Director of Posts and Telegraphs in about 1902. The new director saw wireless telegraphy as 'unproven', and directed Jenvey to activities which seemed more likely to produce immediate revenue. A complete account of Jenvey's experiments was not published until the LISTENER IN revealed the sad details on 19th June 1926. Jenvey's coherer detector is in the collection of the Museum of Victoria.

The next local wireless event which was sufficiently important to gain press coverage was the opening of the Queenscliff-Devenport link across Bass Strait on 1906. The Marconi Company sent its engineer, Captain L Walker, to set up the apparatus. Massive masts were erected at Queenscliff, near the football ground, and a special excursion train from Geelong loaded with dignitaries was chartered. Jenvey is believed to have been involved with the Victorian side of the installation. The GEELONG ADVERTISER, 13th July 1906 (p4) and the Melbourne AGE, 13th July 1906 (p3), published lengthy accounts of the opening ceremonies. The receiver, a 'magnetic detector', together with the three-circuit aerial tuner used on that occasion, are both held by the Museum of Victoria.

In 1908, a Postal Electrical Society of Victoria was formed with H W Jenvey as its first president. Technical papers were read at each of their monthly meetings, and wireless telegraphy must have been the subject of some of these. I cannot locate any transactions or proceedings for the Society in its early years, though some sort of journal may have been privately circulated. The story of the founding of the Society is told in the TELECOM-MUNICATION JOURNAL OF AUSTRALIA, June 1938, (pps2-4).

Experimental licences were first granted under the Wireless Telegraphy Act in 1905. Prominent among the radio amateurs of the pre-First War period was Victor Nightingall of Glenhuntly, an inveterate experimenter in all things electrical. He was deeply involved with professional X-ray work, and held many patents in fields as diverse as slow combustion stoves and sound recording machines. A scrapbook of his experiments is held by his son in Warrandyte, Vic. The Museum of Victoria holds some of his X-ray gear, but no radio equipment.

The minutes of the Wireless Society of Victoria have miraculously survived. These document the activities of the local amateurs from 1910 to 1914. A few weeks before the declaration of war they published the first Australian radio call book. A copy is held by the State Library of Victoria. Photostat copies of the early minutes are held by the Federal WIA Historian, Max Hull VK3ZS.

All amateur radio activities were suspended during the First World War, though many former amateurs extended their radio knowledge in the services, particularly in respect of the provision of communication with the troop transports on ships. Amateur communication, as a pastime, went into recess until the early 1920s.


**Cover 20th May 1923. 'The smile of a deaf man who hears for the first time through radio receivers'.**

In 1922, the first issue of a Sydney wireless journal, SEA LAND AND AIR, was put on the market. A few years later this became the 'Official Journal' of the NSW Division of the WIA, but the official journal of the Federal Convention and the Victorian Division has always been published in Melbourne, as we shall see. By 4th April 1923, SEA LAND AND AIR was absorbed into a fortnightly periodical, RADIO IN AUSTRALIA AND NEW ZEALAND, which was first published on that date. This continued as a fortnightly journal until 13th April 1927 when it became a monthly, still published in Sydney. The last copy of RADIO IN AUSTRALIA AND NEW ZEALAND (sometimes known more simply as RADIO) held by the State Library of Victoria is dated 15th December 1928. WIRELESS WEEKLY, the Sydney journal which had been running parallel with RADIO since the mid-20s then absorbed its rival, and the first WIRELESS WEEKLY incorporating RADIO was published on 28th December 1928. WIRELESS WEEKLY ran through to the early months of 1939, and then seems to have been re-organised as the monthly RADIO AND HOBBIES IN AUSTRALIA, first published in April 1939. It continues today as ELECTRONICS AUSTRALIA.

The Wireless Institute's own 'official journal' was initially the RADIO EXPERIMENTER, a Melbourne-based monthly, first issued in December 1923. The Wireless Institute ceased to be involved with this journal after June 1924, though it continued under private ownership as the RADIO EXPERIMENTER AND BROADCASTER until July 1925.

After the split from the RADIO EXPERIMENTER, the Wireless Institute's official journal became EXPERIMENTAL RADIO AND BROADCAST NEWS, which appeared in August 1924 and ran monthly until February 1925. From the March 1925 issue it was renamed RADIO


**Radio sets available in 1923.**


**A Speaker of Excellence in 1924.**


**BROADCAST. This was an expensive-looking magazine, printed on glossy art paper with a cover**

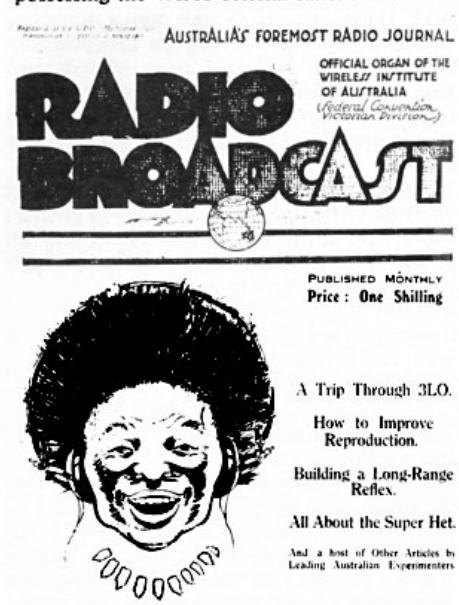
of dyed and textured cartridge paper. It was lavishly illustrated throughout, usually in inks of several different colours. It provides a wealth of written and pictorial documentation for the radio historian. The Melbourne-based RADIO BROADCAST continued in monthly editions as the WIA's official journal until January 1927, and then went into a swift decline. There was no February 1927 issue. March and April were published in a reduced size. Then a 'new series' of RADIO BROADCAST was issued weekly, with no cover — virtually an eight page pamphlet. The State Library of Victoria has only one issue of this pamphlet format for 10th June 1927.

From the 10th June 1927 to the first issue of AMATEUR RADIO in October 1933, there is a mysterious gap in the printed record of WIA activities. There must have been some sort of 'official' WIA publication during this time, but I am not sure that any publication that I have sighted could be the one in question. The front page of a printed 'WIA BULLETIN' for February 1932, 'Vol 3, No 8', is reproduced in the WIA BOOK. This 'Bulletin' seems to have been printed in Western Australia, and with the issue numbers given it could have filled the gap quite nicely. But is this merely a state bulletin? As the State Library of Victoria holds no examples, I am unable to comment on its content.

Another possible 'official publication' of the WIA is RADIO MONTHLY (Sydney) of which I've seen only a few isolated issues in private collections. This was a voluminous production published by 'Amateur Radio and Broadcast Monthly Pty Ltd'. The two copies sighted were for September 1932 and December 1933. The latter is held by Peter Wolfenden VK3KAU, and is numbered 'Vol 2, No 10'. Assuming one volume per year, it was probably established at the start of 1931. It continued well into the 1930s.

From October 1933, amateur radio events have been reported in the WIA's own monthly AMATEUR RADIO magazine, and a complete set is held by the Victorian Division. The State Library's set is incomplete, having only a few odd issues before 1946. The story of Amateur Radio, the magazine, was told in the Golden Jubilee issue, October 1983.

But it would be wrong to assume that amateur radio activities were ignored by magazines not possessing the WIA's official sanction. Some of




**1st July 1925.**


the most fascinating and detailed descriptions of early amateur activities are to be found in seemingly unpretentious hobbyist magazines. During the 1920s and early 1930s, the Melbourne firm of Homecrafts (P H McElroy) either published or was associated with a series of hobby journals which encouraged sales of their radio components. They published articles of a very high journalistic and technical standard and helped the hobby along extremely well in its early years. The uninspiring titles of these magazines discourages many researchers from using them as references, but they should not be underestimated.

The earliest of these journals, of which I am aware, was the HOME CRAFTSMAN, a monthly journal published between September 1923 and June 1924. The advertising for Homecrafts is certainly included, but the articles are not overtly commercial and are written by various amateurs who obviously 'know their stuff'. There are fascinating advertisements for early radio components, lists of stations and reports of amateur activities. The magazine is of about A4 size and is lavishly illustrated with photographs and diagrams. From June 1924 to June 1925 there is a gap, as either the magazine folded or a volume may have gone missing from the State Library shelves.

In June 1925, Homecrafts published the first monthly edition of THE HOMECRAFT MAGAZINE. This had radio as its principal thrust, with occasional additional articles on model making. Stan Hosken 3MP, was the Technical Editor of this excellent tabloid, which was slightly smaller, but thicker in format than the earlier HOME CRAFTSMAN. The HOMECRAFT magazine published lists of stations heard in Melbourne which provide an interesting insight into the number of broadcasters who briefly occupied the bands in these early experimental days. Its content is otherwise reminiscent of RADIO TELEVISION AND HOBBIES in the John Moyle era. The HOMECRAFT magazine ran until October 1926. A magazine of much larger format, POPULAR HOBBIES, then took its place. This was one of the best Australian electronics monthlies of its era, running until the economic depression knocked it out in 1932. POPULAR HOBBIES published the first local constructional article on the design of a working closed circuit television system, in 1928!. It described the operation of such





1st February 1927.

new inventions as radio facsimile, and even had in-depth descriptions of broadcast studio design by 3AR's chief engineer, Donald Macdonald. A truly creditable effort, and a very good read. What a pity it is that Homecrafts no longer serves the radio component trade.

Many commercial radio journals of the late 1920s and 30s carried amateur radio news. The Melbourne weekly LISTENER IN, first published on 10th January 1925, the southern equivalent of Sydney's WIRELESS WEEKLY, had regular amateur notes by Max Howden 3BQ. His column of intelligent comment and dry wit was constantly accompanied by technical articles and constructional information. The paper slowly changed into a radio entertainment guide during the 1930s. A particularly humourous touch is added to some of the editions from 1928, which include programme notes for broadcast band music transmissions by 3BY, 3EF and others. This 200 metre activity of the early amateurs kept our hobby in the public eye, and its value in maintaining public relations must have been great. Anyway, it must have been fun to play 'deejay' each Sunday on your own transmitting gear. LISTENER IN continues today as the TV SCENE.

The LISTENER IN had healthy competition during the 20s from the Melbourne-based POPULAR RADIO WEEKLY, a tabloid of smaller format than its competitor, but printed on better glossy paper. POPULAR RADIO WEEKLY began on 25th February 1925, six weeks after the LISTENER IN, and continued until 20th June 1928, when competition forced it to change its format. On the latter date, it became POPULAR RADIO MONTHLY, with more discursive, lengthier articles. Then on 1st November 1928, it changed its name to POPULAR RADIO AND AVIATION, with a mish-mash of material from both spheres of interest. The last issue of the magazine held by the State Library is for 1st May 1929, and I assume that it folded.

**Continued next month . . .**


## SCHOOLGIRLS TARGETS BY SCIENTISTS

Women CSIRO scientists, and technical staff are to tour Australian high schools to encourage more girls into scientific careers.

Science Minister Barry Jones, and Education Minister Senator Susan Ryan said the scientists would encourage girls to study science. Only about four percent of Australia's tertiary students in engineering and technology were female and girls were under-represented in "hard science" subjects in secondary schools.

## OSCILLOSCOPE SET FOR WORLD MARKETS

An Australian firm is hoping for big export orders after developing a new form of oscilloscope.

Melbourne-based BWD Industries is confident of tripling international sales in the next 12 months with its 8811 Powerscope 11. This model is a high performance oscilloscope which provides accurate measurements of voltage, current, power, phase, and time.

Unlike conventional oscilloscopes, this one can simultaneously display multiple in-circuit power control measurements up to 1000 volts. Additional features allow it to operate as a conventional oscilloscope for measurements up to 50MHz.

BWD describe it as the most versatile and universal test tool available.

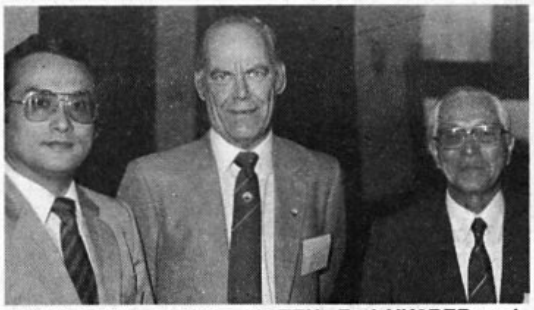
Peter VK3KAU (standing), with (from left) Michael VK3KI, Cynthia Wolfenden (XYL VK3KAU), and Max VK3ZS.

FROM LEFT: Mavis VK3BIR, Ruth Cook (XYL VK3AFW), Roger VK2ZTB and Anne VK4KZX.

Alan VK3BBM, Pat Noble (XYL VK3BBM) and Alan VK1KAL.

FROM LEFT: Nao N1CIX/JH1VRQ/VK3DYM, Mavis VK3KS and Ivor VK3XB.

VK4 representatives, Anne VK4KZX, and Guy VK4ZXZ.



FROM LEFT: Shinjiro JA1TZK, Earl VK3BER and Hideo Agawa.

ABOVE: Nan Owen (XYL VK3KI), Harold VK3AFQ, and Judy (XYL VK3ADW).

ABOVE: The (Right) Honourable Michael Duffy MP. FAR LEFT: Ross VK3CRB, and his XYL Phil chat to an overseas guest, Tadao JA1G JE. LEFT: Peter VK3YRP, Allen VK3AE and Jack VK3SP.

On Saturday, 9th November, a Special 75th Anniversary Dinner was held at the Southern Cross Hotel, Melbourne.

Guests met for cocktails and a get-together, prior to enjoying a sumptuous meal in the Alpha Ballroom, ably presided over by Master of Ceremonies, Max Hull VK3ZS.

During the evening, at Max's suggestion, menus were circulated around the room so that all guests could sign them as a memento of the auspicious occasion.

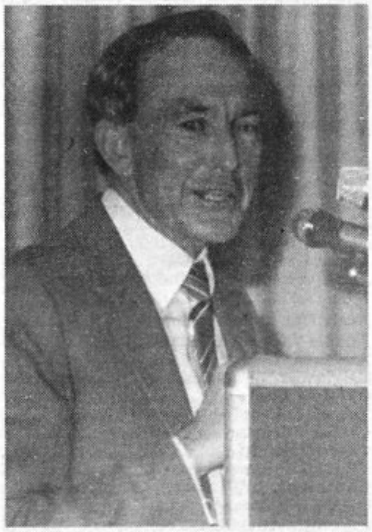
Messages of congratulations were received from The (Right) Honourable R J L Hawke, Prime Minister of Australia, Mr Ronald Reagan, President of the United States, and Senator Barry Goldwater. (See page 3).

At the conclusion of the meal, the WIA Federal President, David VK3ADW, was the recipient of many gifts from the overseas guests, presented on behalf of their organisations to mark the Institute's Anniversary.

# SOME FACES AT THE WIA'S 75TH ANNIVERSARY DINNER

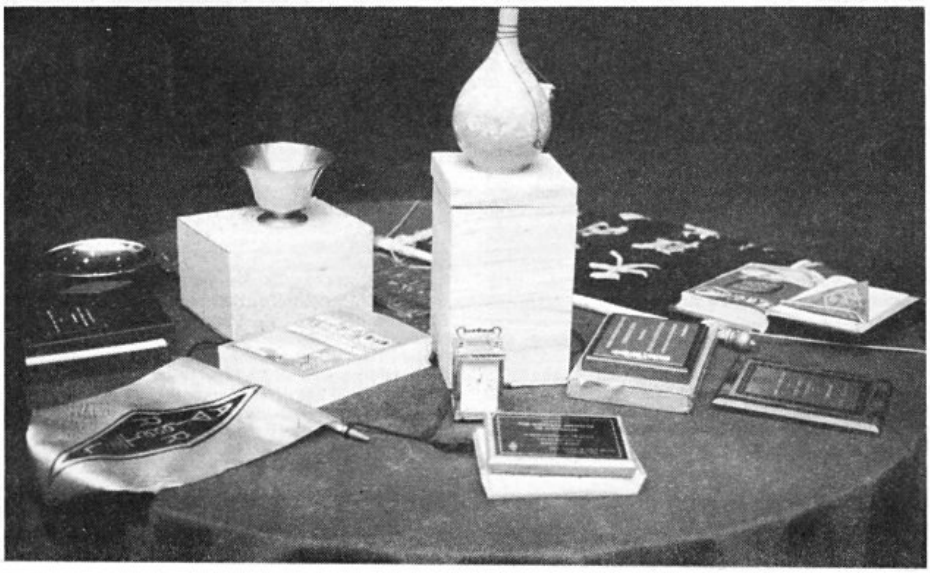
Bill VK3ABP (Editor of AR) and his XYL Margaret.

ABOVE: Menus were autographed by each guest present as a memento. LEFT: Dick W1RU proposes a toast to the WIA. RIGHT: Ross Ramsay spoke on behalf of the Department of Communications. Ross composed some limericks for the occasion, much to the amusement of the audience.




FAR LEFT: The Chinese Radio Sports Association presented the WIA with a colourful wall hanging. LEFT: An engraved plaque was presented on behalf of the Radio Club Venezolano.

BELOW LEFT: Some of the gifts received. BELOW: A magnificent gold clock (set on GMT), presented by David G3OUF, on behalf of the RSGB.




Photographs courtesy Ken McLachlan VK3AH.

# ANNUAL INDEX for AR — 1985 ..... Vol 53


## ARMADILLOS

Armadillos will run again in 1986.

In 1983, the members of the Texas DX Society decided to try their hand at county hunting, by activating all 254 Texas counties during a County Hunters CW contest. Fewer than 60 amateurs covered 262 000 square miles in less than 48 hours to accomplish the feat.

In 1984, the club expanded the "Armadillo Run", as it became known, to include the states of Arkansas, Louisiana, and Mississippi.

For 1986, the group has even bigger plans — a national Armadillo Run! They will attempt to activate *every county in the United States* during the County Hunters phone and CW contests in May and July.

From 73 for Radio Amateurs — August 1985.

AR

## POLYCHLORINATED BIPHENYLS

The serious health hazard represented by contact with polychlorinated biphenyls (PCB) has been mentioned several times in this magazine. This man-made chemical was widely used, from the 30s to the 70s, for such common applications as oil filled capacitors and transformers; these ranged from very large industrial transformers to fluorescent lamps capacitors. It was only as a result of a series of human disasters that led to the recognition (in some countries) of this very real hazard; PCB compounds can be absorbed through the skin or ingested (since it does not break down in food chains), and it has been linked with liver cancer, deformed babies and skin diseases. It was not until 1977 that manufacture of these chemicals was abandoned by British firms. Such compounds provided excellent insulation and coolants and reduced fire hazards; and were much cheaper than the silicones now commonly used to replace this dangerous material.

PCB compounds are still likely to be found in large high voltage transmitting capacitors and transformers.

Precautions should be taken when dealing with (or disposing of leaky oil filled transformers and capacitors unless it is known, for sure, that they do not contain this chemical. British amateur, Brian Castle G4DYF commented: "Recently I came across a leaking transformer and wondered whether it was necessary to dispose of this with great care. An industrial chemist suggested the following test to detect the presence of PCB compounds: 'Take a piece of plain copper wire. Put in a gas flame and burn off all dirt until the flame becomes clear. Allow the wire to cool. Dip it in the oil. Return the wire to the gas flame. If it burns *yellow* it is ordinary oil. If it burns *bright green*, then these compounds are *probably* present. It is not a 100 percent positive test, but if the flame burns bright green it will be wise to assume that the oil contains the compounds — deal accordingly, as it is better to be safe than sorry'."

Contributed by Ron Cook VK3AFW, from Rad Comm July 1982.

**MODEL 7018 GR**

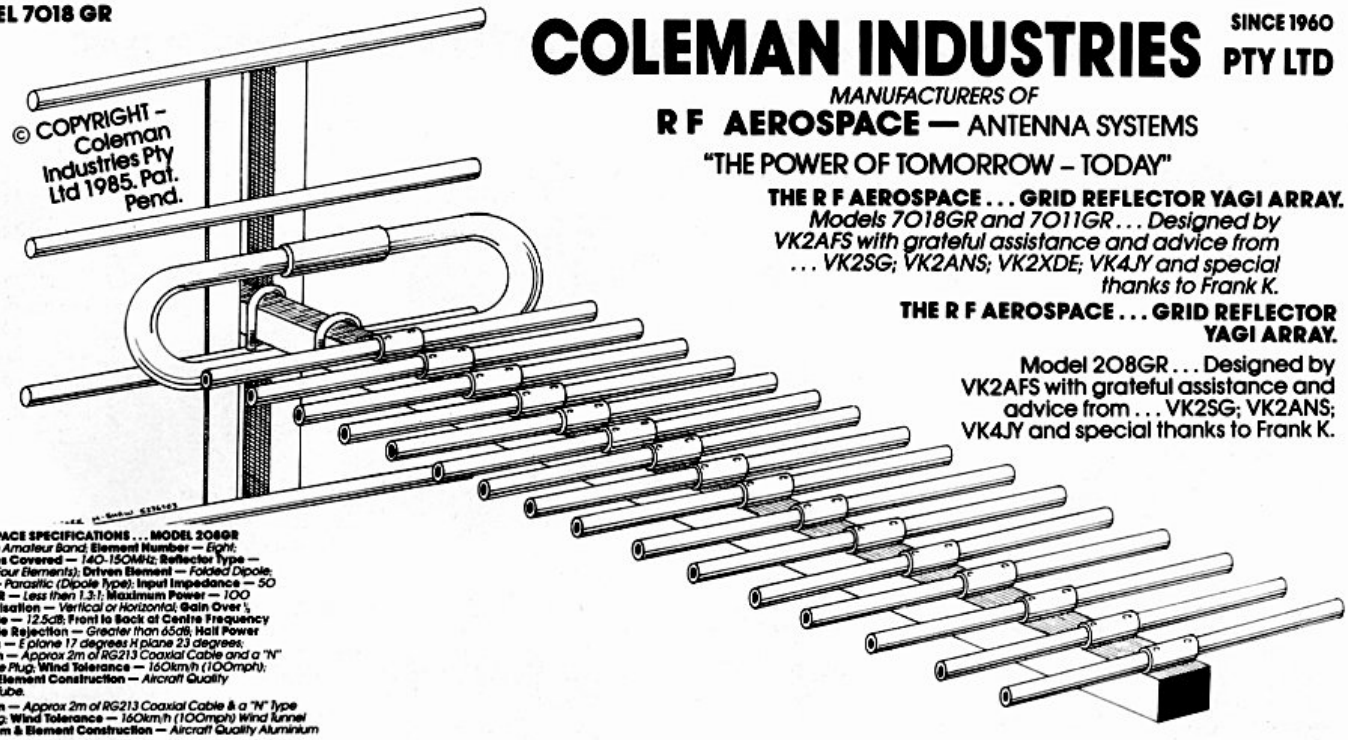
# COLEMAN INDUSTRIES

SINCE 1960 PTY LTD

*MANUFACTURERS OF*

**R F AEROSPACE — ANTENNA SYSTEMS**

"THE POWER OF TOMORROW – TODAY"





**THE R F AEROSPACE . . . GRID REFLECTOR YAGI ARRAY.**

*Models 7018GR and 7011GR . . . Designed by VK2AFS with grateful assistance and advice from . . . VK2SG; VK2ANS; VK2XDE; VK4JY and special thanks to Frank K.*

**THE R F AEROSPACE . . . GRID REFLECTOR YAGI ARRAY.**

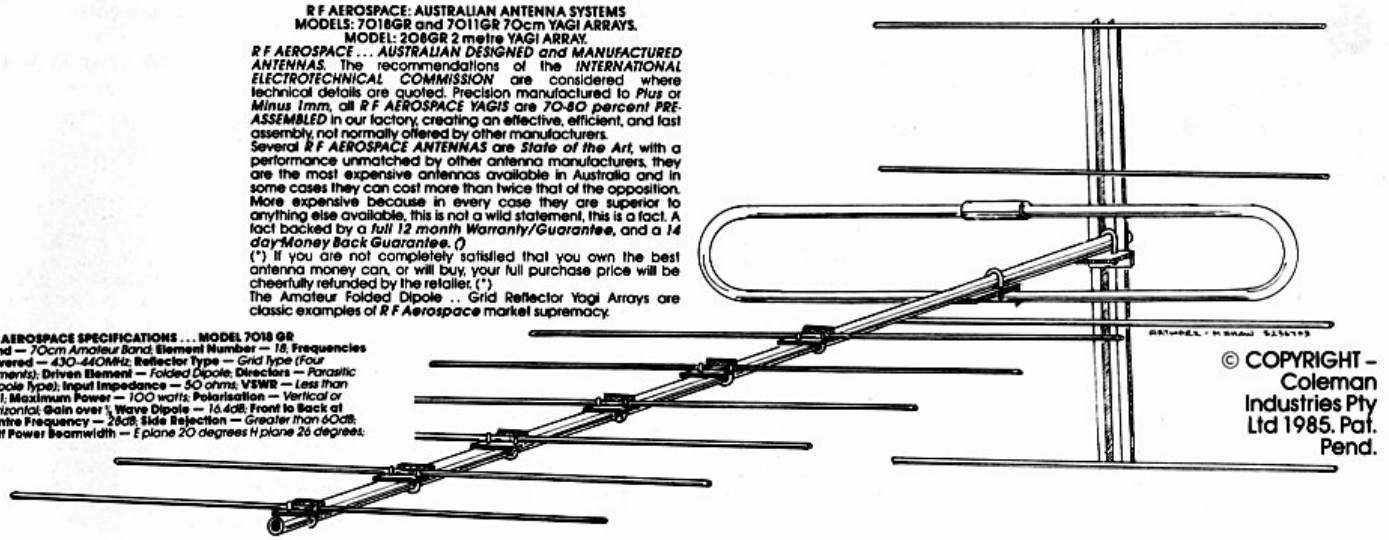
Model 208GR . . . Designed by VK2AFS with grateful assistance and advice from . . . VK2SG; VK2ANS; VK4JY and special thanks to Frank K.

**R F AEROSPACE SPECIFICATIONS . . . MODEL 208GR**
**Band** — *2m Amateur Band;* **Element Number** — *Eight;* **Frequencies Covered** — *140-150MHz;* **Reflector Type** — *Grid Type (Four Elements);* **Driven Element** — *Folded Dipole;* **Directors** — *Parasitic (Dipole Type);* **Input Impedance** — *50 ohms;* **VSWR** — *Less then 1.3:1;* **Maximum Power** — *100 watts;* **Polarisation** — *Vertical or Horizontal;* **Gain Over ½ wave Dipole** — *12.5dB;* **Front to Back at Centre Frequency** — *35dB;* **Side Rejection** — *Greater than 65dB;* **Half Power Beamwidth** — *E plane 17 degrees H plane 23 degrees;* **Connection** — *Approx 2m of RG213 Coaxial Cable and a "N" Type Female Plug;* **Wind Tolerance** — *160km/h (100mph);* **Boom and Element Construction** — *Aircraft Quality Aluminium Tube.*

**Connection** — *Approx 2m of RG213 Coaxial Cable & a "N" Type Female Plug;* **Wind Tolerance** — *160km/h (100mph) Wind Tunnel Tested;* **Boom & Element Construction** — *Aircraft Quality Aluminium Tube.*

**R F AEROSPACE: AUSTRALIAN ANTENNA SYSTEMS**
**MODELS: 7018GR and 7011GR 70cm YAGI ARRAYS.**
**MODEL: 208GR 2 metre YAGI ARRAY.**

***R F AEROSPACE . . . AUSTRALIAN DESIGNED and MANUFACTURED ANTENNAS.*** The recommendations of the *INTERNATIONAL ELECTROTECHNICAL COMMISSION* are considered where technical details are quoted. Precision manufactured to *Plus or Minus 1mm*, all ***R F AEROSPACE YAGIS*** are ***70-80 percent PRE-ASSEMBLED*** in our factory, creating an effective, efficient, and fast assembly, not normally offered by other manufacturers.
Several ***R F AEROSPACE ANTENNAS*** are ***State of the Art***, with a performance unmatched by other antenna manufacturers, they are the most expensive antennas available in Australia and in some cases they can cost more than twice that of the opposition. More expensive because in every case they are superior to anything else available, this is not a wild statement, this is a fact. A fact backed by a ***full 12 month Warranty/Guarantee***, and a ***14 day•Money Back Guarantee.*** (*)
(*) If you are not completely satisfied that you own the best antenna money can, or will buy, your full purchase price will be cheerfully refunded by the retailer. (*)
The Amateur Folded Dipole . . Grid Reflector Yagi Arrays are classic examples of ***R F Aerospace*** market supremacy.



**R F AEROSPACE SPECIFICATIONS . . . MODEL 7018 GR**
**Band** — *70cm Amateur Band;* **Element Number** — *18;* **Frequencies Covered** — *430-440MHz;* **Reflector Type** — *Grid Type (Four Elements);* **Driven Element** — *Folded Dipole;* **Directors** — *Parasitic (Dipole Type);* **Input Impedance** — *50 ohms;* **VSWR** — *Less than 1.5:1;* **Maximum Power** — *100 watts;* **Polarisation** — *Vertical or Horizontal;* **Gain over ½ Wave Dipole** — *16.4dB;* **Front to Back at Centre Frequency** — *26dB;* **Side Rejection** — *Greater than 60dB;* **Half Power Beamwidth** — *E plane 20 degrees H plane 26 degrees;*



**MODEL 208 GR**

## A SELECTION OF R F AEROSPACE — ANTENNA SYSTEMS

SPECIAL PRICES EXPIRE 31-12-85 — 12 MONTHS WARRANTY ON ALL ITEMS

| | | | |
|---|---|---|---|
| 2336 GR ..... $449 | HD604 Full Size ..... was $199 special $79 | 202 Full Size. was $55 special $25 | **R F AEROSPACE** |
| 7018 GR ..... $229 | HD1011103 Full Size..... was $199 special $99 | 203 Full Size. was $65 special $35 | *AVAILABLE UNDER THE* |
| 7011 GR..... $179 | LD1011103 Short..... was $139 special $79 | 204 Full Size was $75 special $45 | **MOBILE ONE** |
| ATV7018 GR ..... $239 | HD1011104 Full Size..... was $239 special $129 | 205 Short.. was $79 special $35 | *LABEL IN: INDONESIA AND MALAYSIA* |
| ATV7011 GR..... $189 | LD1011104 Short..... was $169 special $99 | 205 Full Size. was $89 special $59 | **GR — SERIES ANTENNAE GUARANTEED COMMERCIAL QUALITY & STANDARD** |
| 208 GR ..... $329 | HD1011105 Full Size..... was $319 special $169 | 208 Full Size was $129 special $79 | |
| Folded Dipole – 1296 .....$180 | LD1011105 Short..... was $239 special $115 | 2011 Short was $99 special $69 | |
| Folded Dipole – 70.....$90 | Gamma Matches Available from $17 Separately, if Desired | 2011 Full Size was $169 special $129 | |
| Folded Dipole – ATV ..... $100 | | 208x8 Full Size was $209 special $149 | |
| Folded Dipole – 2m .....$130 | OVER 300 AMATEUR ANTENNAE IN STOCK IN OUR WAREHOUSE AS AT 1-11-85. 10m-23cms | 10-11 VERTICAL - GENUINE 2 BANDS 26-30MHz was $89 special $45 | |
| 2m & 70cm Repeater Kits.. POA | | Gamma Match only 2m..... $17 | |

**ANDREWS COMMUNICATIONS SYSTEMS**
***SHOP 7, GARDEN STREET, MAROUBRA JUNCTION, SYDNEY. NSW***
***THE MAIL ORDER SPECIALISTS***
WRITE TO: P O BOX 33, KENSINGTON, NSW. 2033

**CALL (02) 349 5792**
**OR**
**(02) 344 7880**
***NOW!***

**DEALERSHIP FOR: SA, NT, WA, TAS. AVAILABLE ON APPLICATION TO P O BOX 227, GREENACRE, NSW. 2190.**

# Andrews Communications Systems

## AOR AR 2002

**RECEIVES 25 — 550MHz & 800 — 1 300MHz**

- 2 Continuous tuning ranges
- Sensitivity 0.3μV NFM
- Receives NFM, WFM & AM
- 20 ch Memory with scanning
- Manual tuning knob
- 'S' meter, improved keyboard
- 5, 12.5 & 25kHz increments
- Computer interface socket, clock, delay, priority, search, etc

**THE PRICE**

**$649** inc tax

DON'T PAY $699
90 day warranty. AC Supply inc.


## YAESU FRG-965 SCANNER $Call

**DON'T PAY $799 RRP**
- 60-905MHz continuous
- FMN, AMN, FMW, AMW modes
- Receives SSB to 460MHz
- 100 ch, search, scan, cat, etc

12 months warranty .... Inc approved AC power supply.

SAVE PLENTY ON **YAESU** FROM US.

## YAESU FRG-8800 COMMS REC

**DON'T PAY $829 RRP**
- 2-30MHz receive
- SSB, AM, FM, CW
- 12 ch memory, etc
- keyboard entry, AC/DC

12 months warranty

YOU SAVE MORE AT **ACS.**

## REGENCY HX-2000E . . . $445

- Hand-held programmable scanner
- 20ch, scans, searches, priority, delay
- Better than 0.7μV sensitivity
- 60-89, 118-174, 436-525MHz
- AM/FM modes
- 5/10/12.5/25kHz
- steps are dependant on the band selected.

90 day warranty. Possibly the best hand-held on the Australian Market.

## UHF CB 40ch 1.5W TRANSCEIVER ELECTROPHONE TX-474

Compare to Emtron Ace, Icom IC-40 and save!

Comes with ni-cad battery, charger, rubber duck antenna, earpiece, belt clip, carry strap and full 12 months warranty.

**THE PRICE . . . $379 . . .** inc tax
This is a genuine offer, of course.

## WHY PAY MORE FOR KENPRO ROTATORS?


- KR-400RC medium duty $229
- KR-500 elevation rotator $229
- KR-600RC heavy duty $319
- KR-2000RC extra h/d $549
- 6 core cable $1.50/m
- KS.050 bearing $39
- Rotators come with top and bottom mast clamps and control box.

*All directly imported (KR-400RC illustrated)

90 day warranty

**CHIRNSIDE** beams, **CA.33** 3el triband $309, **CA.35DX** 5el triband $379, heavy-duty tri- banders on 4m and 6m booms, respectively.

**CA.42** 4el 15/10m duo-bander on 4m boom $179

**CA.5SS** 80-10m vertical $129. 80 or 40m helicals $35 ea, 20, 15, or 10m helicals $30 ea.

**CORONA/JUMBO HP-240DX** 10-200 + W 3-30MHz HF Solid-State Linear Amplifier features: 2x2SC-2097 transistors, four power levels, adjustable preamp gain .... **$219**

**WELZ** meters, **SP-220** 1.8-200MHz 2/20/200W $99, **SP-420 140-525MHz 4/20/200W $109, SP-122 1.6-60MHz 20/200/2 000W $119.Compare to Kenwood and others.**

**CORONA GS-110** receive preamp 110-170MHz, 18dB gain, tunable, GaAsFET. Excellent for VHF converter, used in communications receivers. **Only $69.** Few only left.

**10DFB** high quality low-loss coaxial cable $4/m, don't pay $5.80/m! **NP10DFB** or **MP10DFB** plugs **$10 ea.** 100m roll **$380,** rail freight to Melbourne $20 per 100m roll. **SAVE NOW!**

## CALL (02) 349 5792 or 344 7880 NOW!
## SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY NSW
## THE MAIL ORDER SPECIALISTS.
## Write to: P.O. BOX 33, KENSINGTON, NSW 2033

# Andrews Communications Systems

**"WE WISH ALL A VERY MERRY CHRISTMAS"**

# AQS

ICOM STANDARD YAESU

AMATEUR QUINMATIC SYSTEM

**The all-new AQS has been adopted by YAESU, ICOM, and STANDARD for improved station identification, etc.**

FT-3700 **2m/70cm** FMP-1 FT-3900H **70cm** **FT-2303R 2m**




**. . . All coming soon**

**IC-26 2m**

## YAESU FT-726 (R)

**SAVE! ~~$1599~~ SAVE!**

VHF/UHF all mode transceiver. 10 watts output, AC/DC, 0.15uV sensitivity on SSB, LSB, USB, CW, FM. Repeater reverse. IF shift & width controls. RF speech processor. 10 channels memory store mode, frequency & searches. Full cross band, cross mode duplex possible with satellite unit. Supplied with 2m module & mic.

Full 12 months warranty!

70cm ..... ~~$475~~
6m ..... ~~$375~~
Satellite ..... ~~$195~~

## ICOM IC-731

HF SSB, CW, AM, FM transceiver with 100 watts RF o/p. 160-10m transmitter, 100kHz-30MHz receiver. 12 tunable memory channels with memory scan & programme scan functions. PBT & notch tuning. NB, etc. Inc mic. Sensitivity 0.15uV SSB. Compare to the FT-757GX and save.
(Available soon will be the IC-731S 10 watts for only $1125, inc mic).

**Why pay more?**

**$1245** Full 12 months warranty.

PS55 ..... $299
AT150 ..... $Call

## YAESU FT-757GX

**~~$1295~~**

We guarantee to better any competitor's genuine advertised price on Yaesu amateur radio models we normally stock, providing the competitor has the goods available at the advertised price. SO! WHY PAY MORE?

inc mic & CW filter. Compare to Kenwood TS-430S.

Full 12 months warranty!

FP700 ..... ~~$245~~
FC700 ..... ~~$109~~
FC757AT ..... ~~$449~~
MD1B8 ..... ~~$109~~

## TOKYO HY-POWER

* HL-120U 10-100W, GaAsFET, 70cm ..... $599
* HL-60U 10-60W, GaAsFET, 70cm ..... $379
* HL-160V 3/10-160W 2m linear ..... $589
* HL-160V25 25-160W 2m linear, Jan del .... $499
* HL-110V 3/10-110W 2m linear ..... $449
* HL-85V 10-85W GaAsFET, 2m ..... $349
* HL-62V 10-60W GaAsFET, 2m ..... $229
* HL-35V 3-30W GaAsFET, 2m ..... $149
* HL-725D 10-60W 2m/70cm, Jan del ..... $529
* HL-66V 10-60W 6m GaAsFET ..... $229
* HL-1K 1kW 160-10m heavy duty linear, compare to FL-2100Z ..... Only $1099
* HL-3K 3kW 160-10m, 2x 3CX800A ..... POA
* HL-1K/6 for 6m, 15-500W output ..... POA
* HL-121OU, 23cm 1-10W linear .... Coming Soon!
* HC-200, 200W tuner w/3 pos ant sw ..... $199
* HC-400L, 350W tuner, 160-10m, 4 pos .... $339
* HL-200E, 10-200W, HF linear, 12V ..... $229

## ICOM IC-390

(equiv to IC-490A)
430-440MHz
10W, all-mode
UHF mobile
transceiver.

Compare to lesser units . . . **$699**

12 months warranty. Limited stocks.

## ICOM IC-R7000 SCANNER

Covers 25-1 000MHz continuously. All-mode reception. Call for further details.

Best price in Australia guaranteed.

## YAESU FT-2700RH

Full cross-band duplex, 2m/70cm, 25W, 10ch mem, PMS, etc. ~~$945~~

## YAESU IS STATE-OF-THE-ART

* YAESU FT-209R 2m 3.5W hand-held ..... ~~$500~~
* YAESU FT-209(R)H 2m 5W h/h ..... ~~$550~~

Above w/FNB4, c/case, chgr, whip, belt clip.

* YAESU FT-2700RH 2m/70cm 25W full cross- band duplex FM transceiver ~~$945~~
* YAESU FT-770(R) and (R)H ..... coming.
* 12 months warranty on our YAESU, of course.
* YAESU FT-270(R) 10W 2m FM mobile transceiver ..... $499
* YAESU FT-270(R)H 45W 2m FM state-of-the-art mobile transceiver ..... ~~$699~~

# CALL (02) 349 5792 or 344 7880 NOW!

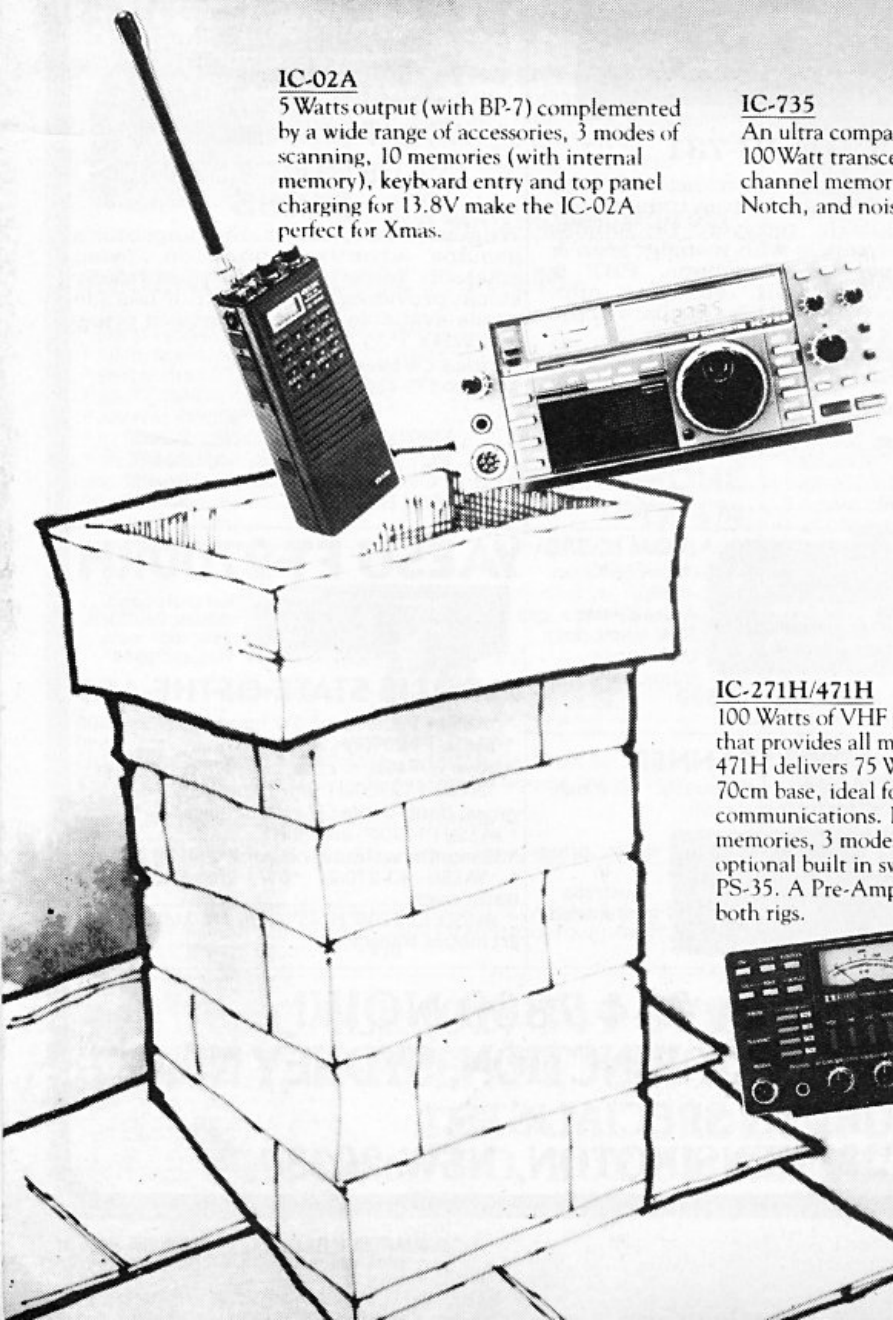
## SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY NSW

## THE MAIL ORDER SPECIALISTS.

## Write to: P.O. BOX 33, KENSINGTON, NSW 2033

# Is Santa Clau

## If he is ... He wou



**IC-02A**
5 Watts output (with BP-7) complemented by a wide range of accessories, 3 modes of scanning, 10 memories (with internal memory), keyboard entry and top panel charging for 13.8V make the IC-02A perfect for Xmas.

**IC-735**
An ultra compact HF, SSB/CW/AM 100 Watt transceiver. Features include 12 channel memory with scanning, PBT, Notch, and noise blanker, etc.

**IC-290**
25 Watts output for a versatile VHF mobile that transceives FM/SSB/CW. Dual VFO's, 5 memories and 3 scanning modes make using it a pleasure.

**R71A**
An HF rec
channels.
an option
voice frequ
magnificer

**IC-271H/471H**
100 Watts of VHF power in a transceiver that provides all modes. The companion 471H delivers 75 Watts for the ultimate 70cm base, ideal for satelite communications. Both radios have 32 memories, 3 modes of scanning, and an optional built in switching power supply PS-35. A Pre-Amp is also available for both rigs.

**IC-751**
A unique built in switching p
(opt PS-35) delivers all in on
performance for this 100W H
SSB/AM/CW/RTTY/FM tran
Dual VFO's, 32 memories wit
notch, and NB enhance the t
the general coverage receiver.

**Check out these and other fab**
**at your local authorized ICO**

# s an Amateur?
# ld use ICOM.

ver that has 32 programmable
SB/CW/AM/RTTY/FM (opt)
fra red remote control and
ncy readout (opt), a
radio.

wer supply

ceiver.
PBT,
ning for

**IC-27A/47A**
These ultra compact mobiles deliver 25 Watts offer voice frequency readout (opt), 9 memories with back up, scanning, and feature a built in loudspeaker.

**IC-3200A**
Ultra compact dual bander (VHF/UHF) with a built in duplexer, 10 tunable channels, 4 scanning modes and an advanced LCD readout, great for the car.

lous ICOM radios
M dealer today.

ICOM Simply the best.

7 DUKE STREET,
WINDSOR, VICTORIA. 3181
PHONE (03) 51 2284

# NOVICE NOTES

## BASIC METALWORKING - "CHASSIS BASHING"

Drew Diamond VK3XU
Lot 2, Gatters Road, Wonga Park, Vic. 3115

*Have you ever wanted to have a go at an electronics project, but have been discouraged by the metal- working prospects?* Nowadays, there are plenty of handsome factory-made cases available, but their cost can sometimes be a bit prohibitive, especially for the poor student. With a few tools, and a little skill, it is possible to make some very presentable boxes to house your projects. Firms such as Alcan and Comalco sell sheet aluminium by weight, so the amateur can buy a selection of off-cuts at reasonable cost.

An investment in good tools is never wasted money, for they will hold their value, and prove their worth, time and again. It is the intention of this article to describe the use of some basic tools, and illustrate the fabrication of a simple box for a QRP transmitter project.

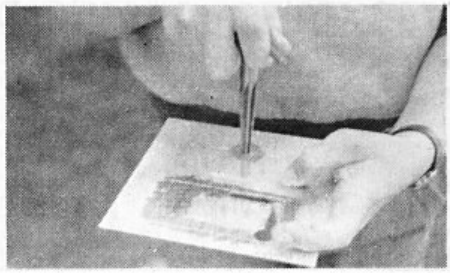
### FILING

Of the hundreds of different files available to the amateur, we only require about three or four types at first to carry out basic operations. These would include a 'flat' second-cut file for finishing straight edges, and removing burrs, a round or 'rat-tail' file for enlarging holes (but see later), and a half round, for finishing meter holes and the like. Never use a file without a handle, as there is always the danger of "spearing" oneself with the pointed tang.

### DRILLING

Some kind of drill is essential. For radio and electronic work, a manual 'egg-beater' type is fine, and allows firm control over the drilling operation. A set of twist drills, ranging from 1.6mm (1/16") to about 6.4mm (¼") will be found satisfactory for most work. Avoid cheap drills, as they blunt and bend easily, and are therefore not economical in the long term.

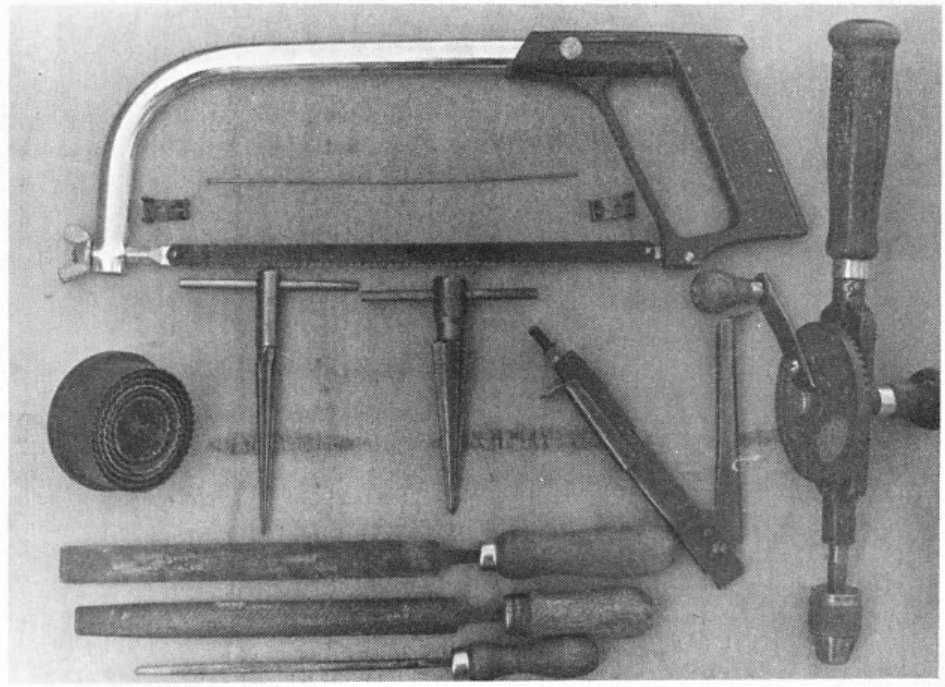
Before a hole is drilled, the spot should be marked with a centre punch to prevent the drill from drifting, and when drilling holes of more than about 3mm in sheet metal, a small pilot hole, of about 1.6mm should be made first to prevent drift. When a hole is completed, the burrs should be removed with a counter-sinking bit, or a drill of larger diameter than the hole. To prevent damage to the workbench, a scrap of wood should be placed under the work during all drilling operations.

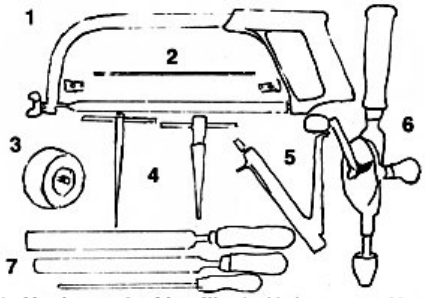


**Handy sheet metal worker — the tapered hand reamer.**

One of the handiest tools for the sheet metal worker is a tapered hand reamer. For holes of greater than about 6mm, a hole of that diameter is drilled first, then carefully enlarged to the required diameter with the reamer. It produces a rounder and smoother hole than can normally be obtained with a drill and/or round file.

For making larger holes in sheet aluminium, a set of hole-saws is ideal. They are rather expensive however, and must be used in a drill press with the work firmly clamped, and goggles worn by the operator. This operation is not recommended to the beginner, but is mentioned here for future use as skill and confidence increases.



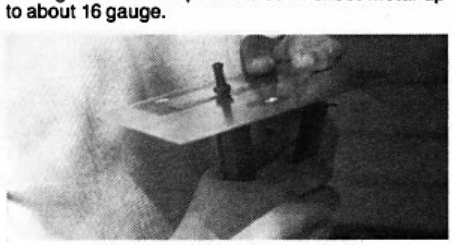



**1. Hacksaw 2. Abrafile 3. Holesaw 4. Hand Reamers 5. Nibbler 6. "Egg Beater" Drill 7. Files — note the handles.**

### CUTTING

The hacksaw is useful for cutting small areas of sheet metal. A blade with at least 24, and preferably 32, teeth per inch should be used. A not so well-known device is the Abrafile, which fits into a hacksaw frame. Being a toothed rod of small diameter, it is more manoeuvrable than an ordinary hacksaw blade, and so is useful for making odd shaped holes in sheet material.

The 'nibbler' has become very popular. It is a sort of miniature guillotine, and is useful for cutting round and square holes in sheet metal up to about 16 gauge.



The Nibbler.

### BENDING

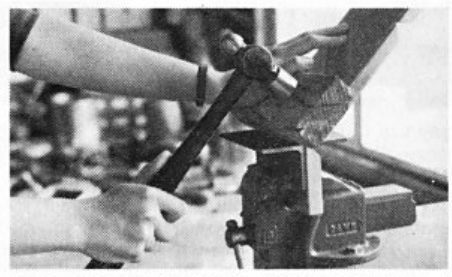
There are one or two amateur type benders available, but probably not worth the investment if only small projects are planned. With a selection of L-section angle iron of different sizes, a vice, hammer, and some scraps of wood, it will be possible to make boxes of reasonable quality.

### MAKING A BOX

1 Cut out sheet to the required size. Felt-tipped pen stain will provide a background for scribing the marking out lines.

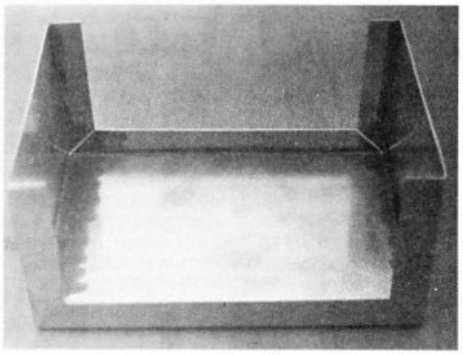
2 Drill a 2mm hole at the apex of the cut-outs, as shown. This allows the bends to be done without crushing at the meeting edges. Nibble or hacksaw the 90 degree cut-outs. Smooth the edges and remove burrs with a flat file.

3 Sandwich the narrow edge of the job in a vice between two lengths of angle iron. G-clamp the ends together if the job is significantly longer than can be accommodated by the vice. Apply a block of wood to the edge to be bent, and with a hammer, carefully dress the metal to a right angle. Do the same with the other side.



**Dress the metal with a hammer to form a right angle.**

4 Select, or cut, a piece of angle iron to fit into the bends which will form the front and back panels of the finished box. The metal is dressed to form a right angle for these two bends as for step



**The bent body of the chassis.**

5 Carefully measure the width and height of the front and back panels now formed. We can now cut to size, mark out, and make a lid to suit. The height of the lid will have to be about 3mm greater than was actually measured, and this should be allowed for in the marking out. Test the lid on the box after making the first bend. This will allow you to make the second bend in precisely the right place irrespective of the marking out line, so allowing for any inaccuracies that have crept in.

6 With the lid complete, mark out where the securing screws are to be placed so that self-tappers may be inserted into the folded up edges formed in step 3. Drill the holes in the lid. It will now be possible to put the lid in place and mark the spots where holes must be drilled to take the screws. These should have a diameter equal to about ⅔ that of the screws.

**References:**
Novice Notes; (Ron Cook) AR August 1980.
"Little Boxes"; AR May 1979.
Radio Handbook; (Bill Orr).

**AR**

**Oh! the satisfaction of building your own aluminium box.**

## TRIVIA DEPARTMENT

***WHY? ? ?***

40 metres is 7.496MHz..... (outside the band)
20 metres is 14.993MHz..... (outside the band)
15 metres is 19.990MHz..... (outside the band)
10 metres is 29.985MHz..... (outside the band)
6 metres is 49.975MHz..... (outside the band)
2 metres is 149.925MHz..... (outside the band)

***And, the WARC bands ———***

30 metres is 9.995MHz ..... (outside the band)
17 metres is 17.638MHz ..... (outside the band)
12 metres is 24.986MHz..... (just INSIDE the band)

*Check them! The speed of radio waves is 299 851 km/sec or 186 319 miles/sec (one mile equals 1.60934km).*

Contributed by Mervyn Eunson VK4SO

# THE RADIO PHONETIC ALPHABET

Maxwell Hull VK3ZS, WIA Federal Historian

Phonetics is the doctrine of sounds, the science which treats of the sounds of the human voice and the art of representing them by writing. It pertains to the representation of sounds and it is this aspect which interested early 'wireless operators' in making clear to the receiving parties those words (or figures) in the transmission which were difficult to understand because of weak signals, fading, atmospherics, electrical interference, interference from an adjacent transmission (even sometimes from a harmonically related band!), poor audio response in the modulation equipment or a poor quality microphone, or just plain inability of the operator to articulate clearly for one reason or another.

One could probably trace the necessity for the use of phonetics back to when man first commenced to communicate by the spoken word (or grunt!). It certainly would have been used occasionally by public speakers in bad acoustic conditions before amplification of the voice became possible.

In the early days of 'wireless' operators used whatever word seemed suitable to make clear the meaning of that part of the context of their transmission needing clarification. Hence, around the amateur world in particular, a somewhat of a 'hotch-potch' of words came into use not all of which were necessarily good.

The problem didn't escape the world Governments responsible for the developing communications in their respective countries. In 1947 at the Atlantic City conference of the International Telecommunications Union a phonetic alphabet was incorporated which proved to leave much to be desired. Thus by the 1956 Geneva Conference of the ITU it became necessary to use up a lot of hours deliberating on the problem. The result was the adoption of the phonetic alphabet which had been used by NATO Forces and civil airlines prior to this Conference.

When the Geneva Regulations came into force in May of 1957 the following approved phonetics came into general use.

| | | | |
|---|---|---|---|
| *A* | ***Alfa*** | *Able* | *Amsterdam* |
| *B* | *Bravo* | *Baker* | *Baltimore* |
| *C* | ***Charlie*** | *Charlie* | *Casablanca* |
| *D* | ***Delta*** | *Dog* | *Danemark* |
| *E* | ***Echo*** | *Easy* | *Edison* |
| *F* | ***Foxtrot*** | *Fox* | *Florida* |
| *G* | *Golf* | *George* | *Gallipoli* |
| *H* | ***Hotel*** | *How* | *Havana* |
| *I* | ***India*** | *Item* | *Italia* |
| *J* | ***Juliet*** | *Jig* | *Jerusalem* |
| *K* | ***Kilo*** | *King* | *Kilogram* |
| *L* | ***Lima*** | *Love* | *Liverpool* |
| *M* | *Mike* | *Mike* | *Madagascar* |
| *N* | *November* | *Nan* | *New York* |
| *O* | ***Oscar*** | *Oboe* | *Oslo* |
| *P* | ***Papa*** | *Peter* | *Paris* |
| *Q* | ***Quebec*** | *Queen* | *Quebec* |
| *R* | *Romeo* | *Roger* | *Roma* |
| *S* | ***Sierra*** | *Sugar* | *Santiago* |
| *T* | ***Tango*** | *Tare* | *Tripoli* |
| *U* | ***Uniform*** | *Uncle* | *Upsala* |
| *V* | ***Victor*** | *Victor* | *Valencia* |
| *W* | ***Whisky*** | *William* | *Washington* |
| *X* | *X-Ray* | *X-Ray* | *Xantippe* |
| *Y* | ***Yankee*** | *Yoke* | *Yokohama* |
| *Z* | ***Zulu*** | *Zebra* | *Zurich* |

The Geneva Regulations still permitted individual countries to use any other phonetic alphabet recognised by their own administration for communication between themselves.

The first column is the NATO/ICAO phonetics adopted at Geneva with the syllables emphasised in heavy type, then the well-known Able-Baker-Charlie list which is still used between British ships and British coast stations, and finally the third column lists the cumbrous words which had been approved at Atlantic City and which were used until the Geneva Regulations were introduced. Amateurs have tended to use some phonetics from all three systems.

The method of identifying numerals 1 to 0 respectively utilises the first ten words of the Geneva list, (Alfa, Bravo, Charlie, Delta, Echo, Foxtrot, Golf, Hotel, India, Juliet); and that of 'comma', 'fraction bar', 'break sign' and 'full-stop' the next four letters (Kilo, Lima, Mike, November). When transmitting figures they are preceded and followed by the words "as a number" spoken twice. As an example the figures 1985 would read "as a number as a number, Alpha India Hotel Echo, as a number as a number". The method of identifying numerals in this way is not used by operators in British ships and coast stations. The GPO "Handbook for Wireless Operators" gives the following rules for the pronunciation of numerals —

*O — **zero;** 1 — **wun;** 2 — **too;** 3 — **thuh-ree;** 4 — **fo-wer;** 5 — **fi-yuv;** 6 — **six;** 7 — **seven;** 8 — **ate;** 9 — **niner.***

Each transmission of figures is preceded and followed by the words — "as a number" spoken twice. Amateurs usually don't follow that part of the procedure. There is no adamant compulsion for amateurs to specifically use the Geneva endorsed phonetic alphabet but it assists to be uniform.

*This is **Victor Kilo** Thuh-ree **Zulu Sierra** signing off. This is a number this is a number, **Sierra Charlie**, this is a number this is a number". **Ditdahditdahdit.***

**AR**

# AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

## OSCAR-10 APOGEES
## DECEMBER 1985

| DAY # | ORBIT # | APOGEE U.T.C HHMM:SS | SATELLITE CO-ORDINATES LAT DEG | LON DEG | BEAM HEADINGS SYDNEY AZ DEG | SYDNEY EL DEG | ADELAIDE AZ DEG | ADELAIDE EL DEG | PERTH AZ DEG | PERTH EL DEG |
|---|---|---|---|---|---|---|---|---|---|---|
| 1st December | | | | | | | | | | |
| 335 | 1857 | 0902:36 | -24 | 215 | 329 | 76 | 28 | 76 | 80 | 59 |
| 2nd December | | | | | | | | | | |
| 336 | 1859 | 0821:38 | -24 | 206 | 15 | 78 | 55 | 70 | 86 | 50 |
| 3rd December | | | | | | | | | | |
| 337 | 1861 | 0740:41 | -24 | 197 | 50 | 73 | 70 | 62 | 92 | 41 |
| 4th December | | | | | | | | | | |
| 338 | 1863 | 0659:43 | -24 | 187 | 68 | 65 | 79 | 53 | 96 | 32 |
| 5th December | | | | | | | | | | |
| 339 | 1865 | 0618:46 | -24 | 178 | 78 | 56 | 86 | 45 | 100 | 24 |
| 6th December | | | | | | | | | | |
| 340 | 1867 | 0537:48 | -24 | 168 | 85 | 48 | 92 | 36 | 104 | 15 |
| 7th December | | | | | | | | | | |
| 341 | 1869 | 0456:54 | -24 | 159 | 91 | 39 | 97 | 28 | 109 | 8 |
| 341 | 1870 | 1636:25 | -24 | 334 | | | | | 249 | 4 |
| 8th December | | | | | | | | | | |
| 342 | 1871 | 0415:56 | -24 | 149 | 96 | 30 | 101 | 19 | 113 | 0 |
| 342 | 1872 | 1555:28 | -24 | 325 | | | | | 253 | 11 |
| 9th December | | | | | | | | | | |
| 343 | 1873 | 0334:59 | -24 | 140 | 100 | 22 | 106 | 12 | | |
| 343 | 1874 | 1514:30 | -24 | 315 | | | 248 | 2 | 257 | 20 |
| 10th December | | | | | | | | | | |
| 344 | 1875 | 0254:01 | -24 | 131 | 105 | 14 | 111 | 4 | | |
| 344 | 1876 | 1433:33 | -24 | 306 | 246 | -1 | 252 | 9 | 261 | 28 |
| 11th December | | | | | | | | | | |
| 345 | 1877 | 0213:04 | -24 | 121 | 109 | 6 | 116 | -3 | | |
| 345 | 1878 | 1352:38 | -24 | 297 | 250 | 6 | 257 | 17 | 266 | 37 |
| 12th December | | | | | | | | | | |
| 346 | 1879 | 0132:09 | -24 | 112 | 114 | -1 | | | | |
| 346 | 1880 | 1311:40 | -24 | 287 | 255 | 14 | 261 | 25 | 270 | 45 |
| 13th December | | | | | | | | | | |
| 347 | 1882 | 1230:43 | -24 | 278 | 259 | 22 | 266 | 33 | 276 | 54 |
| 14th December | | | | | | | | | | |
| 348 | 1884 | 1149:46 | -24 | 268 | 264 | 30 | 271 | 42 | 283 | 64 |
| 15th December | | | | | | | | | | |
| 349 | 1886 | 1108:48 | -25 | 259 | 268 | 39 | 277 | 50 | 296 | 72 |
| 16th December | | | | | | | | | | |
| 350 | 1888 | 1027:51 | -25 | 250 | 274 | 48 | 285 | 59 | 326 | 80 |
| 17th December | | | | | | | | | | |
| 351 | 1890 | 0946:56 | -25 | 240 | 280 | 56 | 297 | 68 | 27 | 80 |
| 18th December | | | | | | | | | | |
| 352 | 1892 | 0905:59 | -25 | 231 | 290 | 65 | 319 | 75 | 62 | 74 |
| 19th December | | | | | | | | | | |
| 353 | 1894 | 0825:01 | -25 | 221 | 307 | 73 | 1 | 78 | 76 | 65 |
| 20th December | | | | | | | | | | |
| 354 | 1896 | 0744:04 | -25 | 212 | 343 | 79 | 42 | 75 | 84 | 56 |
| 21st December | | | | | | | | | | |
| 355 | 1898 | 0703:06 | -25 | 202 | 33 | 77 | 64 | 67 | 90 | 47 |
| 22nd December | | | | | | | | | | |
| 356 | 1900 | 0622:12 | -25 | 193 | 61 | 71 | 76 | 59 | 94 | 38 |
| 23rd December | | | | | | | | | | |
| 357 | 1902 | 0541:14 | -25 | 184 | 74 | 62 | 84 | 50 | 99 | 29 |
| 24th December | | | | | | | | | | |
| 358 | 1904 | 0500:17 | -25 | 174 | 83 | 54 | 90 | 42 | 103 | 21 |
| 25th December | | | | | | | | | | |
| 359 | 1906 | 0419:19 | -25 | 165 | 89 | 45 | 95 | 33 | 107 | 13 |
| 359 | 1907 | 1558:51 | -25 | 340 | | | | | 246 | -1 |
| 26th December | | | | | | | | | | |
| 360 | 1908 | 0338:22 | -25 | 155 | 94 | 36 | 99 | 25 | 111 | 5 |
| 360 | 1909 | 1517:53 | -25 | 331 | | | | | 250 | 7 |
| 27th December | | | | | | | | | | |
| 361 | 1910 | 0257:27 | -25 | 146 | 99 | 28 | 104 | 17 | 115 | -2 |
| 361 | 1911 | 1436:58 | -25 | 321 | | | 244 | -2 | 254 | 15 |
| 28th December | | | | | | | | | | |
| 362 | 1912 | 0216:30 | -25 | 137 | 103 | 20 | 109 | 9 | | |
| 362 | 1913 | 1356:01 | -25 | 312 | | | 249 | 5 | 258 | 23 |
| 29th December | | | | | | | | | | |
| 363 | 1914 | 0135:32 | -25 | 127 | 107 | 12 | 113 | 2 | | |
| 363 | 1915 | 1315:04 | -25 | 302 | 247 | 2 | 253 | 12 | 262 | 31 |
| 30th December | | | | | | | | | | |
| 364 | 1916 | 0054:35 | -25 | 118 | 112 | 4 | | | | |
| 364 | 1917 | 1234:06 | -25 | 293 | 251 | 10 | 258 | 20 | 266 | 40 |
| 31st December | | | | | | | | | | |
| 365 | 1918 | 0013:37 | -25 | 108 | 117 | -3 | | | | |
| 365 | 1919 | 1153:09 | -25 | 284 | 256 | 17 | 262 | 28 | 271 | 49 |

### NATIONAL CO-ORDINATOR

*Graham Ratcliff VK5AGR*

### INFORMATION NETS

**AMSAT AUSTRALIA**

*Control: VK5AGR*
*Amateur Checkin: 0945 UTC Sunday*
*Bulletin Commences: 1000 UTC*
*Winter: 3.685 MHz Summer: 7.064 MHz*

**AMSAT PACIFIC**

*Control: JA1ANG*
*1100 UTC Sunday*
*14.305 MHz*

**AMSAT SW PACIFIC**

*2200 UTC Saturday*
*21.280/28.878 MHz*

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

### ACKNOWLEDGEMENTS

Contributions this month have been from Bob VK3ZBB, and the ever reliable UoSAT Bulletins.

### UOSAT BULLETINS

In recent weeks Bulletins have commenced publication on the UoSAT-2 (OSCAR 11) in addition to OSCAR 9. Albeit of slightly different format they are an excellent addition to the service provided by the University of Surrey.

### G3RUH COMPUTER PROGRAMMES.

Jim Miller G3RUH, known world-wide for his excellent series of articles in Wireless World, has also written some excellent computer software related to spacecraft orientation, eclipse calculations, etc for OSCAR 10. Although written for the BBC computer, in BBCBASIC, they are easily converted to other systems. Conversions to TRS Models 1 and 3, and CP/M3 have already been made.

For those interested in the complexities of spacecraft attitude determination, an SASE to Graham VK5AGR will provide a listing of those programmes available for general release.

### FUTURE SATELLITES FOR THE 90s

The following item was posted on a recent UoSAT Bulletin and discusses future proposals for the Amateur Satellite Service. The article originated from Amateur Satellite Report (ASR).

### GEO-SYNCHRONOUS SATELLITE SYSTEM

Progress is being made on several fronts towards a geo-synchronous amateur radio satellite capability, according to AMSAT. The geo-synchronous satellites, often called Phase 4 satellites, have been the subject of keen interest recently as a result of several unrelated developments. These developments were said to be three-fold.

First was the recent National Aeronautics and Space Administration (NASA) announcement of its Advanced Communications Technology Satellite (ACTS) Programme, and the suggestion that it could conceivably include amateur radio interfaces.

Second, it was recently learned, by W3GEY, that there is a possibility of AMSAT flying its own transponder/s aboard the ACTS spacecraft.

Thirdly, Arianespace has told AMSAT it is currently developing a so-called "piggy-back" pricing policy for small payloads on its Ariane 4 launcher.

Thus, according to these officials, there are three avenues to a Phase 4 system currently under active study.

An ad hoc AMSAT ACTS study group suggested ACTS was in fact out of reach of AMSAT. The group thought the 30/20GHz uplink/downlink combination and the very high speed digital switching involved would tax our technical resources beyond the projects worth. While no one was willing to say 'impossible', several pointed to

other projects and noted that all available resources would have to be devoted to ACTS at the expense of most other development activities. The cost in these terms, the group seemed to say, would be too high. On the other hand, a number of the AMSAT ad hoc ACATS study group suggested that ACTS offered an excellent possibility for gateway access to a geo-synchronous spacecraft. AMSAT is seeking individuals to work on a proposal to this effect and has dubbed this access to the geo-synchronous capability the P4A1 option (Phase 4A, option 1).

The launch is currently slated for fourth quarter, 1988, according to W3GEY.

W3GEY reported that he received cautious encouragement from NASA and RCA. A preliminary concept would place a Mode L and a Mode S transponder aboard the ACTS payload. AMSAT's transponder would advantage itself of conditioned power, station keeping, and thermal control provided by the host.

AMSAT would provide transponders, control, and its own antennas. The antennas on ACTS appear unsuitable for any antennas AMSAT might use.

The key incentive for including AMSAT aboard ACTS, barring any fundamental technical constraints, was for NASA to perceive a positive technical innovation and a public service aspect to any such proposition. Thus, AMSAT is now soliciting concrete suggestions as to how amateurs might benefit society either directly through communications services or indirectly through technological innovation in connection with ACTS — we should be mindful of the nature of ACTS, that is, it is a communications technology experiment. An ACTS proposal team is to collect ideas and codify them in the form of a formal proposal to NASA.

According to preliminary concepts discussed by W3GEY and WA2LQQ, three types of service might be provided by the Mode L and S transponders. First would be a Mode L linear transponder, similar to that on AO-10 and Phase 3C. Second would be a packet radio repeater, or perhaps even packet switch. Finally, a third service might include a capability to both link selected terrestrial repeaters and group address repeaters for bulletins, training, educational materials, and, of course, emergency communications on a hemispheric basis. Given the opportunity, AMSAT might also propose a more ambitious amateur C-Band transponder, as well.

The suggestions by W6KAG were made, based on his examination of the NASA ACTS documents, and on his independent contacts in the space industry. It was W6KAG who established that there might be payload accommodation sufficient for AMSAT's interests. The idea of placing an amateur radio transponder aboard a commercial, or scientific geo-synchronous spacecraft has been discussed by AMSAT for nearly a decade, and builds on the SYNCART (Synchronous Amateur Radio Transponder) concept of AMSAT Canada and Project OSCAR. More recently, a proposal was made by Cablesat General of Florida, and its President, WA4OHK, to place a C-band amateur radio transponder aboard a proposed commercial spacecraft. The FCC recently eliminated Cablesat from competition for the orbital slot in which Cablesat was to place its satellite.

AMSAT will be working this possible Phase 4 option as its P4A2 option. Concepts for use may be sent to AMSAT President, WA2LQQ, PO Box 177, Warwick, NY. 10990. Similarly, individuals interested in writing portions of AMSAT's proposal to NASA, or in participating in a proposal team should contact WA2LQQ by mail at the same address.

A third avenue to a geo-synchronous system could be a two satellite system launched by an Ariane 4. Arianespace is known to be working on a low-cost, "piggy-back" system which seems ideally suited to carry an AMSAT payload to a geo-synchronous transfer ellipse. A two-satellite system with one placed over the Equator at 47 degrees west, and another over 148 degrees west, would provide coverage for virtually all of North America to Western Europe, and most of Africa on the eastern satellite (AMSTAR East), and most of North America to the Pacific Basin, including New

SATELLITE ACTIVITY FOR PERIOD 1 AUGUST TO 29 AUGUST 1985.

1. LAUNCHES.

The following Launching Announcements have been received:-

| | | | |
|---|---|---|---|
| 1985-064A | Cosmos 1670 | Aug 1 | USSR |
| 1985-065A | Cosmos 1671 | Aug 2 | USSR |
| 1985-066A | Oscar 24 | Aug 3 | USA |
| 1985-066B | Oscar 30 | Aug 3 | USA |
| 1985-067A | Cosmos 1672 | Aug 7 | USSR |
| 1985-068A | Cosmos 1673 | Aug 8 | USSR |
| 1985-069A | Cosmos 1674 | Aug 8 | USSR |
| 1985-070A | Raduga 16 | Aug 8 | USSR |
| 1985-071A | Cosmos 1675 | Aug 12 | USSR |
| 1985-072A | Cosmos 1676 | Aug 16 | USSR |
| 1985-073A | Planet A | Aug 18 | Japan |
| 1985-074A | Molniya 1-64 | Aug 22 | USSR |
| 1985-075A | Cosmos 1677 | Aug 23 | USSR |
| 1985-076A | STS-51I | Aug 27 | USA |
| 1985-076B | Aussat 1 | Aug 27 | Australia |
| 1985-076C | ASC 1 | Aug 27 | USA |
| 1985-076D | Syncom IV-4 | Aug 29 | USA |
| 1985-077A | Cosmos 1678 | Aug 29 | USSR |
| 1985-078A | Cosmos 1679 | Aug 29 | USSR |

Notes on these satellites:-

Planet A was launched by the Institute of Space and Astro-nautical Science (ISAS) from the Kagoshima Space Center, Japan. The spacecraft is cylindrical with a 1.4 meter diameter and 0.7 meter height and weighs 139.7 kg. On board is an ultraviolet imaging camera to observe the hydrogen corona around the coma of the comet Halley and an energy analyser of ions and electrons to measure solar wind and probably cometry charged particles. The spacecraft transmits on 2293.89 MHz with 0.07/5 Watts with coherent/non-coherent modes for ranging/telemetry. The orbit parameters are epoch 04h 10m 32s August 22, 1985(UTC), incl'n 0.888°, perihelion 100.480 million km, aphelion 151.467 million km, period 282.2 days. The closest encounter with comet Halley will be 1256Z March 8, 1986, distance 211,000km. The spacecraft is now renamed "Suisei" (the Japanese for comet).

STS-51I orbit elements were period 92.0 min, incl'n 28.5°, apogee 385 km, perigee 355 km. On board were J.H.Engle, R.O.Covey, J.D. van Hoften, W.F.Fisher, and J.M.lounge. Payload included Aussat 1, ASC 1 and Syncom IV-4. This Discovery mission also included the repair of a fuel-laden Leasat satellite.

2. RETURNS.

During the period fortythree objects returned or decayed including the following satellites:-

| | | |
|---|---|---|
| 1982-111A | OPS 9627 | Aug 13 |
| 1983-102A | Cosmos 1502 | Aug 29 |
| 1985-039A | Cosmos 1654 | Aug 7 |
| 1985-062A | Cosmos 1669 | Aug 30 |
| 1985-063A | STS-51F | Aug 6 |
| 1985-065A | Cosmos 1671 | Aug 16 |
| 1985-067A | Cosmos 1672 | Aug 21 |

3. GENERAL.

1966-100A ATS 1 was located at 133.120°West at 1305 UT on Aug. 15, 1985. Inclination 11.872°.
1984-033A Cosmos 1547 and 1984-107A Cosmos 1604 are reported to have beacons operating on 2304 MHz. Both satellites are in range of Australia and the South Pacific for several hours each day. Updated Keplerian Elements are available for a SASE sent to VK3ZBB, QTHR.

## OSCAR-10 APOGEES
## JANUARY 1986

| DAY # | ORBIT # | APOGEE U.T.C HHMM:SS | SATELLITE CO-ORDINATES LAT DEG | LON DEG | BEAM HEADINGS SYDNEY AZ DEG | SYDNEY EL DEG | ADELAIDE AZ DEG | ADELAIDE EL DEG | PERTH AZ DEG | PERTH EL DEG |
|---|---|---|---|---|---|---|---|---|---|---|
| 1st January | | | | | | | | | | |
| 366 | 1921 | 1112:14 | -25 | 274 | 260 | 25 | 267 | 37 | 277 | 58 |
| 2nd January | | | | | | | | | | |
| 367 | 1923 | 1031:16 | -25 | 265 | 264 | 34 | 272 | 45 | 285 | 67 |
| 3rd January | | | | | | | | | | |
| 368 | 1925 | 0950:19 | -25 | 255 | 269 | 42 | 278 | 54 | 301 | 76 |
| 4th January | | | | | | | | | | |
| 369 | 1927 | 0909:22 | -25 | 246 | 275 | 51 | 287 | 63 | 346 | 82 |
| 5th January | | | | | | | | | | |
| 370 | 1929 | 0828:24 | -25 | 237 | 282 | 60 | 301 | 71 | 47 | 79 |
| 6th January | | | | | | | | | | |
| 371 | 1931 | 0747:27 | -25 | 227 | 293 | 69 | 330 | 78 | 71 | 71 |
| 7th January | | | | | | | | | | |
| 372 | 1933 | 0706:32 | -25 | 218 | 315 | 76 | 20 | 78 | 81 | 62 |
| 8th January | | | | | | | | | | |
| 373 | 1935 | 0625:35 | -25 | 208 | 3 | 80 | 54 | 73 | 88 | 53 |
| 9th January | | | | | | | | | | |
| 374 | 1937 | 0544:37 | -26 | 199 | 48 | 76 | 71 | 65 | 93 | 44 |
| 10th January | | | | | | | | | | |
| 375 | 1939 | 0503:40 | -26 | 190 | 69 | 68 | 80 | 56 | 97 | 35 |
| 11th January | | | | | | | | | | |
| 376 | 1941 | 0422:42 | -26 | 180 | 79 | 59 | 87 | 47 | 101 | 26 |
| 12th January | | | | | | | | | | |
| 377 | 1943 | 0341:48 | -26 | 171 | 86 | 51 | 92 | 39 | 105 | 18 |
| 13th January | | | | | | | | | | |
| 378 | 1945 | 0300:50 | -26 | 161 | 92 | 42 | 97 | 30 | 109 | 10 |
| 378 | 1946 | 1440:21 | -26 | 337 | | | | | 247 | 3 |
| 14th January | | | | | | | | | | |
| 379 | 1947 | 0219:53 | -26 | 152 | 96 | 33 | 102 | 22 | 113 | 3 |
| 379 | 1948 | 1359:24 | -26 | 327 | | | | | 251 | 10 |

Zealand. Eastern Australia and Japan would be on the western satellite (AMSTAR West). Further trade-offs could be made in coverage and a terrestrial relay might be invoked to allow double-hop communications such that Australia, for instance, could work England. AMSAT is working this option as P4A3. W3GEY and WA2LQQ were planning to discuss these options at the Space Symposium and Annual General Meeting on 9th November, in Vail, Colorado, and the following day with AMSAT's Directors. Comments and suggestions are solicited.

However, neither AMSAT's officers nor its directors are precisely certain what is in the greater interest of its members, and the amateur radio community, for future projects.

The view from AMSAT DL is that a follow-on to Phase 3C next summer should naturally be phase 3D, a 1.2 scale version of Phase 3C with a super power Mode L transponder aboard (in the 200 to 300 watt class). Meanwhile, JAS-1 will be launched next summer, as well. AMSAT UK and SA AMSAT are both interested in satellite projects with the latter now supporting the Mode S transponder project of Phase 3C.

### AMSAT-OSCAR-10 OPERATIONS (ZL1AOX)

A new Mode B transponder schedule was put in place on the 17th October. A review of this schedule was to be considered about the 12th November 1985. The new schedule is:

*MA 055 to 119 ..... Mode B*
*MA 120 to 136 ..... Mode L*
*MA 137 to 203 ..... Mode B*
*MA 204 to 239 ..... OFF*
*MA 240 to 019 ..... Mode B*
*MA 020 to 054 ..... OFF*

The main reason for this schedule is to reduce the continuous Mode B time during poor sun angles, which will occur again when the attitude in moved to LON 185, LAT -2. This started on 20th October. It will also give the Northern Hemisphere stations the opportunity to work during perigee passes. I request that during perigee operation, and also when AO-10 is oriented at 185, -2 that stations **please reduce their power** so that they are not more than one S point above the General Beacon.

The present attitude is approximately LON 165, LAT -26 degrees, which means that when standing behind the S/C at apogee looking towards the Earth, the S/C antennas are pointing to the right 15 degrees, and upwards towards the Northern Hemisphere 26 degrees. All systems seem normal in the S/C at present.

Operators should monitor the bulletins on the General Beacon of Mode B, 145.810MHz, for the latest developments.

The following item is presented after the event so to speak, however, from an historical point of view, it is extremely well worth presenting.

### MANNED MISSIONS

During the seven-day Spacelab Mission D1, in October 1985, the science astronauts R Furrer DD6CF, E Messerschmid DG2KM, and Dr Wubbo Ockels PE1LFO operated an amateur radio station, located in the Spacelab on board the Space Shuttle COLUMBIA — the call sign being DP0SL. The amateur activity started on day three and continued until 12 hours before landing. Therefore, five days operation, with the astronauts active as radio amateurs in there (free) time.

### TECHNICAL INFORMATION

The station on board the Spacelab consisted of the following items: *VHF/UHF Transceiver, Antenna, DC/DC Converter, Various Cables, Headset Container with 10 micro-cassettes.*

The VHF/UHF transceiver is a special development, designed and constructed by Bosch/Germany according to the D1-mission specifications, and using components out of the normal mobile transceiver programme of Bosch. RF power output of this transceiver is 10 watts, which is reduced to one watt for automatic (beacon) operation. Frequency range of the transmitter is 144 to 146MHz with F3e (FM) modulation.

The receiver is a double-superheterodyne receiver, frequency ranged from 430 to 440MHz. Sensitivity for S+N/N=12dB is 0.45 microvolts.

Selection of operating frequencies is provided by a ROM, programmed for four VHF transmitting frequencies and six UHF receiving frequencies, within a 25kHz channel spacing. The transceiver is provided with a built-in micro-cassette recorder.

The antenna was designed and constructed by a group of radio amateurs at the antenna laboratories of the University of Bremen. This special antenna, which was mounted outside the Spacelab, is an aluminium whip, approximately 50cm in length. It shows quarter-wave resonance for VHF, and 5/8 lambda resonance for UHF.

Electrical power (28V DC) was applied to the transceiver from the Spacelab utility power lines, via a DC/DC converter, to provide line isolation from ground, for the Spacelab power lines.

### SEASONS GREETINGS

Perhaps it is a sign that I am getting older at a faster rate, because it only appears that last Christmas was just last week. Nonetheless, may I offer Seasons Greetings to all the readers of this column and trust that the year to come will provide you with all the pleasures that you missed out on in 1985.

de Colin VK5HI
**AR**

## KNOW YOUR SECONDHAND EQUIPMENT


### YAESU FT-200 TRANSCEIVER

Perhaps one of the more famous of the Yaesu transceivers. First arrived in Australia in mid-1969. The 200 covered amateur bands from 80 to 10 metres in 500kHz segments, but only 28.5 to 29MHz was provided as standard for the 10 metre band. The circuit was a single conversion set-up with a 9MHz IF and tubes were used for most functions. However, like the FTDX-400, transistors were used in the VFO and other ancillary circuits. Unlike the FTDX-400, the 200 did not have a built-in power supply. AC and 12 volt DC power supplies were available as optional extras. Most were sold with the AC supply but many amateurs built their own. There are three models of the FT-200. The original can be identified by the dummy switch between the meter and tuning dial. The knob is there but no switch behind the panel. The second model had the internal/external VFO selector switch in this same position and the third model was in an all black colour scheme. The earlier models had a silver front panel and a grey cabinet. Many modifications were published in AR over the years and I would have to say that most were quite unnecessary.

If you are looking for a second hand FT-200 beware of one that has had lots of mods. The new price of the FT-200s varied between $400 and $450 with AC power supply. Second hand price tends to be variable. Late models with matching AC supply $300 down to about $175, for an early model, perhaps with a home built power supply. Some home built power supplies are more of a liability than an asset. A good FT-200 can perform very well indeed. Most of the tubes used are still easy to obtain and the FT-200 can be recommended as an excellent rig for the beginner.

# CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

## CONTEST CALENDAR

**DECEMBER**

| | |
|---|---|
| 7- 8 | *ARRL 160 metre Contest* |
| 14-15 | *ARRL 10 metre Contest* |
| 14 | *Ross Hull Memorial VHF Contest begins (Rules October AR)* |
| 31 | *UBA SWL Competition 1986 (Rules October AR)* |

**JANUARY**

| | |
|---|---|
| 1 | *UBA SWL Competition 1986 (Rules October AR)* |
| 6 | *Ross Hull Memorial VHF Contest concludes* |
| 11-12 | *Michigan QRP Club CW Contest* |
| 18-19 | *Hungarian DX Contest* |
| 18-19 | *White Rose SWL Contest (Rules this issue)* |
| 24-26 | *CQ WW 160 metre CW Contest* |
| 11 | *40 metre World SSB Championship Contest** |
| 12 | *75 metre World SSB Championship Contest** |
| 18-19 | *160 metre World SSB Championship Contest** |
| 25 | *15 metre World SSB Championship Contest** |
| 26 | *20 metre World SSB Championship Contest** |

**FEBRUARY**

| | |
|---|---|
| 1- 2 | *RSGB 7MHz SSB Contest* |
| 22-23 | *RSGB 7MHz CW Contest* |
| 21-23 | *CQ WW 160 metre SSB Contest* |

**MARCH**

| | |
|---|---|
| 8- 9 | *Commonwealth Contest 1986* |
| 8- 9 | *CW Contest (Tentative)* |
| 15-16 | *John Moyle Memorial Field Day Contest* |

** Denotes World SSB Championship Contests sponsored by 73 magazine. Rules for these contests appear in this issue.*

It would seem like a very busy start to the New Year with all the contests listed. I would hardly imagine that even the most dedicated contester would be able to enter all the contests listed. It certainly allows the 'faithful' to keep themselves well occupied, and at the same time, provides a wide variety of operations.

## REMEMBRANCE DAY CONTEST

As I write these notes in October, all the logs have been collated and sorted into batches for checking. It is certainly the most popular contest in VK, and entails me in a fairly heavy workload. I had hoped to have the results completed for publication in this issue, however, the pressure of other matters has not allowed as much time as I would have wished. I can certainly promise that, completely unforeseen circumstances barred, the results will appear in January's magazine.

As stated in my notes last month, the standard of log entries has certainly improved, however, there are still a number which leave something to be desired. Whilst it is not a perfect world, and I do not expect to see that situation ever occur, I cannot understand why some operators are just too downright lazy to read the rules properly, and go to at least reasonable lengths to try to comply with them.

It certainly was obvious, to the majority, that there were **two categories,** namely HF and VHF, in this years Remembrance Day Contest, and as this was the case, two **totally separate logs** together with **separate front sheets** should be provided.

In an endeavour to try and indicate just where problems exist I am considering taking the liberty of listing such problems and indicating against particular entries where some shortcomings apply. This would be done **not** in an attempt to embarrass anyone, but merely to try to assist and encourage those prepared to submit entries to improve their standard of entry.

Incidentally, it may interest some members, that two logs submitted showed the post-marked date of 3rd October. The latest due date was 27th September! ! ! Unfortunately, both logs were from club stations, so it is anticipated members of the clubs concerned will express some dissatisfaction in the right areas about their logs not being submitted in time. In such instances I cannot, in all conscience, accept such entries as being valid.

I would not wish to finish my notes for this year on anything which sounds like a sour note. To that end, I wish to express my thanks to all who supported my efforts throughout the year, by entering the contests conducted by me, on behalf of the WIA, and I wish, in particular, to thank those who took the time and trouble to write and express your opinions on contest matters, as well as make suggestions as to where things can be improved. I have said previously in this column, I cannot undertake to answer all the letters I receive, but I can assure you, even though you may not receive a personal reply, your thoughts and comments are properly considered. There are times where I would find it most difficult, if not impossible, to implement completely the suggestions made.

In the position of FCM, I find there are not always simple answers available, so I believe I must try and function in a manner which is fairest to the majority, and keep in mind the interests of amateur radio as a whole, not just look at things in isolation. I most particularly appreciate the instances when members bring up matters concerning contests at Divisional meetings, or at their club. This promotes a wider discussion, than would otherwise be the case. I would encourage an increase in this approach.

As far as I can see, 1985 has been a fairly successful year on the contest scene. I would like to think, with even more experience under my belt, I will be able to play my part to help make the coming year even more successful.

With the Christmas season coming, and another New Year in sight, it is traditional that we look back over the past 12 months and review just what has occurred. It seems, for some reason, to be easier to adopt a spirit of goodwill to others, as well as a happier outlook, at this time. I would, as I have done for some years now wonder why we cannot maintain such a healthy attitude right throughout the year. Perhaps I can say a word, through these pages, to encourage you to try and adopt such an approach, and, at the same time, remind myself to heed my own words and instincts.

I feel that we can learn quite an important lesson if we stop and look back over, not just over this past year, but rather to consider what has occurred during this last century. Without doubt, it has been a century of incredible advances in technology. Our current day capabilities in modern sciences, physics, and technology of all kinds are nothing short of amazing, and who can say just how much further we can progress. I may ask though, whether we have really come from out of the dark ages. Just think about it briefly.

We have devised more scientific ways of devastating the world, and all creatures that share this planet with us. Many of our new-found capabilities could be put to better use, to benefit all.

The point of my philosophising in this manner is that if we are to see a change for the better, it is up to us all, as individuals, to do something about it. Just the way we live our daily lives can play a big part in making this a better world to live in. Need I point out, that we as amateur radio operators, with world-wide communications capability at our fingertips, have an amazing potential to influence things for the good and betterment of mankind.

I make no apology for writing in this vein, as I strongly believe every opportunity should be taken to try to better things, and that if every person tries to do some good, we must all benefit, as a result.

May I suggest that you all fall into the habit of wishing each person you come into contact with to *'have a nice day'* (and maybe give them a smile). You will be amazed at the responses you receive. Also let us carry this approach into our contacts on the air, with fellow amateurs,

I would like to take this opportunity to say; "Have a nice day", and wish you, on behalf of my wife and myself, a very happy and blessed Christmas. May we look forward to a New Year of much happiness and peace in the world.

I would also wish that those away on holidays will have a pleasant and safe time. Drive carefully on the roads, as accidents hurt many more than those directly involved.

Best wishes, and 73 — Ian VK5QX

## WORLD SSB CHAMPIONSHIP CONTESTS

These five separate contests are sponsored by 73 magazine for radio amateurs.

*Fifth annual 40 metre test will be held from 0000-2400 UTC, 11th January 1986.*

*Fifth annual 75 metre test — 0000-2400 UTC, 12th January 1986.*

*Seventh annual 160 metre test — 0000 UTC 18th January to 2400 UTC 19th January 1986.*

*Second annual 15 metre SSB test — 0000-2400 UTC, 25th January 1986.*

*Second annual 20 metre SSB test — 0000-2400 UTC, 26th January 1986.*

BASIC RULES — Stations may be worked only **once per event.** All contacts must be two-way SSB. All stations may operate for the entire contest period.

CLASSIFICATION — a Single operator, Single transmitter, SSB only. b Multi operator, Single transmitter, SSB only.

EXCHANGE — Stations within the continental 48 US States, and 13 Canadian Provinces or Territories transmit RS report, and State, Province, or Territory. All others, including Alaska and Hawaii, transmit RS report and ARRL DXCC Country.

POINTS — Five QSO points for contacts within your own continent, 10 QSO points for contacts outside your own continent.

MULTIPLIERS — One multiplier point is earned for each continental US State (48 maximum), Canadian Province or Territory (13 maximum), or ARRL DXCC Country (excluding the US or Canada).

SUGGESTED FREQUENCIES — 21.250-21.350; 14.175-14.250; 7.050-7.080 (DX); 7.175-7.250 (W/VE); 3.760-3.790; 3.805-3.875; 1.830- 1.850, and 1.855-1.900MHz. (Australian amateurs note that some of these frequencies are outside our allocations).

FINAL SCOCOm RE — Total QSO points X Multiplier points = the Claimed Score.

ENTRIES — Must include Contest Log, Dupesheet for 100 or more contacts, List of Multipliers, and Summary Sheet as outlined below. Be sure to include your SOAPBOX COMMENTS, and a black and white photograph for possible publication.

SUMMARY SHEET — Must contain Contest Call Sign, ARRL DXCC Country, Station Owners Name and mailing address, List of Station Equipment and Antenna/s, Operator's Class, Total QSOs, Total QSO Points earned, Total US States Worked, Total Canadian Provinces/Territories Worked, Total DXCC Countries Worked, Total Multiplier Points, and your Claimed Contest Score.

DEADLINE — Entries should be mailed to the appropriate Contest Chairman, and postmarked no later than 20th February 1986. Late entries will be registered as check logs.

DISQUALIFICATION — Usual disqualification criteria applies. Stations disqualified this time will be barred from these events for one year

thereafter.
PENALTIES — A penalty of 100 QSO points will be assessed for each duplicate contact counted in a contestants claimed score.
AWARDS - A minimum of 100 QSOs must be worked in an event to be eligible for a contest award. Plaques will be issued to the World Championship Stations. Awards will be issued in each operator class, in each DXCC Country represented.
CONTEST RULES AND FORMS — Your own set of rules, and official contest forms, may be obtained from Billy Maddox KA6JJK/3, 1162 Bayview Vista Drive, Annapolis, MD. 21401.
CONTEST CHAIRMEN —
15 metres ... Gary Vest WA3KCY, Star Route, Box 34, Holliday, TX. 76366.
20 metres ... Chuck Ingram WA6R, 44720 N 11th Street East, Lancaster, CA. 93535.
40 metres ... Dennis Younker NE6I, 43261 6th Street East, Lancaster, CA. 93535.
75 metres ... Ron Johnson KC7PA, 68 South 300 West, Brigham City, UT. 84302.
160 metres ... Harry Arsenault K1PLR/4, 704 Curtiss Drive, Garner, NC. 27529.

## WHITE ROSE AMATEUR RADIO SOCIETY — SIXTH SWL LOWER FREQUENCY BANDS CONTEST

From 1200 UTC 18th January to 1200 UTC 19th January 1986. Up to 18 hours logging may be done during the period.

The contest is open to anyone in the World, and there will be two sections — Phone and CW. No mixed modes allowed. Transmitting amateurs holding a VHF only licence (LAOCP) can participate.

The 1.8, 3.5 and 7MHz bands are to be used.

The practice of logging a series of contacts made by one station is deprecated. Log entries must not include the same call sign in the 'Station Worked' column more than 10 times on each band. A station appearing in the 'Station Worked' column can only be claimed once for scoring. Duplicate entries will incur penalties if not shown as such.

The object of the contest is to log as many stations, in as many countries as possible. Scores should be compiled as follows:
*one point for each station heard on each band from one's own continent, and five points for each station heard on each band* **outside** *one's continent. Total points on each band to be multiplied by the total number of countries heard. The final score is the total of the three bands. A list of countries heard* **must** *be furnished and a separate log must be submitted for each band.*
The call areas of the USA, Canada, Australia, and New Zealand will count as a separate country; ie VK1, VK2, VK7, ZL1, ZL2, W1, etc — separate countries. All other countries will be determined by the ARRL Countries List.

No CQ, QRZ, or similar calls will be allowed to count for points. /AM or /MM stations are not to be included in the entries.

Log sheets to show the following information: Date; Time UTC; Band; Station Heard, Station being Worked; Report at SWL's QTH. Points may only be claimed for stations actually heard, and the call sign must be shown in full. If points are claimed for both stations, the call sign must appear in the Station Heard column.

Entries should be sent to the Contest Manager, John Hart G3ZGA, White Rose Amateur Radio Society, 146 Street Lane, Leeds, LS8 2AD, to arrive not later than 24th February 1986.

Certificates of Merit will be awarded at the discretion of the White Rose ARS. and its decision will be final. **AR**

## RESULTS 1984 CQ WW DX CONTEST

Following are the call signs and scores of Australian stations that competed in the Single Operator section of the 1984 CQ WW DX Contest.

*VK1RJ 108 452; VK1WB 54 390; VK1LF 2 992; VK2DVJ 125 496; VK2WU 594 000; VK2OE 2 856; VK3DVT 22 815; VK3CJW 64 932; VK3SM 20 331; VK3FY 100 056; VK4OX 7 380; VK4NX 1 026; VK5BJA 244 387; VK5QX 199 485; VK6DU 417 261; VK6MD 323 635; VK6IR 208 748; and VK6HD 1 007.*

*VK6DU was zone winner for Zone 29, and VK2WU was winner for Zone 30. A check log was received from VK3XB.*
From CQ, September 1985.

# INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Most columns at this time of the year conclude with Christmas greetings ... but I will start the column by wishing all readers a very Merry Christmas, and a Happy and Prosperous New Year, and once again, many thanks to those who supported the Intruder Watch during 1985.

Particular thanks to those who sent in reports for August last: *VKs 2BQS, 2DEJ, 2PS, 2QL, 4AKX, 4BG, 4BHG, 4BTW, 4KHZ, 5GZ, 5BJF, 7RH and Mr G Bradford.*

## STILL AROUND

The end of the year brings to a close the WIA 75th Anniversary celebrations, and, no doubt, it will seem no time at all until the Institute is making plans for the celebration of their Centenary. I hope I will be around to see it!

On the bad news side, the USSR Naval Intruder, "UMS", has once again returned to his summer spot on 21,032MHz, **DESPITE assurances from the USSR Administration** that the offending stations would be removed from the 21 and 14MHz bands.

## WILL WORK THIS WAY!

An interesting letter was received recently from Bob ZL1BAD, the IARU Region 3 Intruder Watch Co-ordinator. Bob was recently in Geneva for a 'Study Group' on Intruder Watches, which was held at the ITU building. Amongst other things, Bob reports that, in future, the IW system will work this way:

*The National Amateur Radio Society (in our case, the WIA) will continue as usual with monthly summarisation of reports, with copies going to local Administration (DOC) and the Regional IW Co-ordinator (Region 3 for Australia). The Regional Co-ordinator will then forward information to the International Co-ordinator (new appointment), who will forward the information to the International Frequency Registration Board (IFRB) through the IARU Executive Committee.*

The IFRB has indicated that it is in favour of the change to the system, and should be good news for all intruder watchers. Formerly, the IW had no direct access to the IFRB.

Bob also mentioned that, while he was in the USA, he visited the Ferndale FCC monitoring station. This station is able to get a bearing on a signal in 90 seconds, which is computer-linked to other remote stations for the cross-bearing. **They can pin- point a transmitter to within one square kilometre in five minutes.**

## STATISTICS

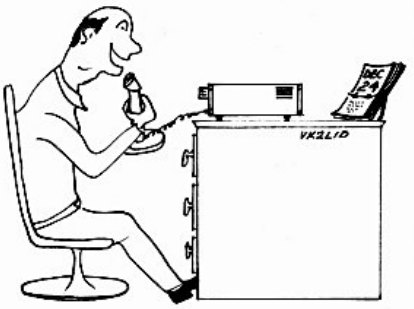
Statistics for August are — 346 Broadcast Intruders, 130 CW, 51 RTTY, and 20 other modes. Intruders identified were 48.

## INTRUDER NOTES

The 'V' Beacon-like signal is still being heard on 7.003.5MHz; SSB stations operating from the South American continent are still causing a problem on the lower end of 40 metres, and are thought to be **NON-AMATEUR;** The North American Armed Forces Net, which operates just under the 40 metre amateur allocation has been spilling over into the amateur allocation of late; VK8s, in Darwin, are plagued by Indonesian CB operators on the 28MHz band, and, when the solar cycle comes good, we will be looking at a new problem, because the taxi-cab operators, in Hong Kong are using the 28MHz band, with apparently little concern shown by their administration. Actually, it appears that a lot of the intruder problems on the amateur bands are a direct result of the apathy (ignorance?) displayed by the Administrations of various countries, which is a sad state of affairs.

Thanks to Col VK4AKX, and Henry VK8HA for the above notes.

Anyway, let us try to put these problems aside for this month, and HAVE A VERY MERRY CHRISTMAS! See you next month. ... **AR**




**"Yes Kris, OM — and a linear, and a new rotator, and ....." — VK2COP**

# VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

## AMATEUR BANDS BEACONS

| FREQUENCY | CALLSIGN | LOCATION |
|---|---|---|
| 50.005 | H44HIR | *Honiara* |
| 50.008 | JA2IGY | *Mie* |
| 50.060 | KH6EQI | *Honolulu* |
| 50.075 | VS6SIX | *Hong Kong* |
| 50.109 | JD1YAA | *Japan* |
| 51.020 | ZL1UHF | *Mount Climie* |
| 52.033 | P29BPL | *Loloata Island* |
| 52.100 | ZK2SIX | *Niue* |
| 52.200 | VK8VF | *Darwin* |
| 52.250 | ZL2VHM | *Manawatu* |
| 52.310 | ZL3MHF | *Hornby* |
| 52.325 | VK2RHV | *Newcastle* |
| 52.370 | VK7RST | *Hobart* |
| 52.400 | VK0MA | *Mawson* |
| 52.420 | VK2RSY | *Sydney* |
| 52.425 | VK2RGB | *Gunnedah* |
| 52.440 | VK4RTL | *Townsville* |
| 52.450 | VK5VF | *Mount Lofty* |
| 52.460 | VK6RPH | *Perth* |
| 52.470 | VK7RNT | *Launceston* |
| 52.490 | ZL3SIX | *Blenheim* |
| 52.510 | ZL2MHF | *Upper Hutt* |
| 144.019 | VK6RBS | *Busselton* |
| 144.400 | VK4RTT | *Mount Mowbullan* |
| 144.410 | VK1RCC | *Canberra* |
| 144.420 | VK2RSY | *Sydney* |
| 144.465 | VK6RTW | *Albany* |
| 144.550 | VK5RSE | *Mount Gambier*[1] |
| 144.565 | VK6RPB | *Port Hedland* |
| 144.480 | VK8VF | *Darwin* |
| 144.800 | VK5VF | *Mount Lofty* |
| 145.000 | VK6RPH | *Perth* |
| 147.400 | VK2RCW | *Sydney*[2] |
| 432.057 | VK6RBS | *Busselton* |
| 432.160 | VK6RPR | *Nedlands* |
| 432.420 | VK2RSY | *Sydney* |
| 432.425 | VK3RMB | *Ballarat* |
| 432.440 | VK4RBB | *Brisbane* |
| 1296.171 | VK6RBS | *Busselton* |
| 1296.480 | VK6RPR | *Nedlands* |
| 10300.000 | VK6RVF | *Roleystone* |

*1 The Mount Gambier two metre beacon is now back on the air, and has been heard both in Melbourne, and at VK5LP. It appears not to be as strong as previously being at the threshold of noise more consistently. John VK5DJ, wrote to me and advised of the reopening of the beacon, following more than a year of being out of service due to water entering the vents in the enclosure, which damaged the identifier and caused instability in the exciter strip. Peter VK5BKF, repaired the identifier and made up a waterproof cover, while John VK5DJ, repaired the exciter and amplifier stages. The final result is a very stable beacon, with further pulse shaping to produce a cleaner signal, but currently running 12 watts output rather than the former 20 watts. In due course, full power will be available.*

*John and his group are not sure whether to increase the height of the antenna from the present chimney position where it is largely not arousing much interest by vandals, but may well do so if raised. Personally, I believe reliability is the most important parameter, and the relatively weak signal being transmitted means any improvement in propagation conditions produces a more readable signal. I believe it should be left as is, I can still read it all the time, even if I do have to now wait for a minute or two for the signal to come out of a fade whereas, before it was always audible, despite QSB.*

*2 I understand there is a possibility of a frequency change for VK2RCW to 144.950MHz. October 1985 Break-In has a note from Tim VK2ZTM, advising of this and the possibility of an 80 metre outlet on 3.699MHz for a trial period of six months, until early 1986, using a crystal locked FT-7 with 15 watts into a long wire antenna. The beacons are sponsored by the Hornsby and District Amateur Radio Club, PO Box 362, Hornsby, NSW. 2077, and reports are sought.*

*VK2RCW is a Sydney based, continuous Morse transmission station, and is transmitter fed from a memory store with about an hour of text, which is changed at intervals. A wide selection of text is used, including foreign languages, and can be sent backwards to prevent the listener from journalising. Transmission speeds are 5, 8, and 12WPM, and operation is continuous.*

*VK2RCW started transmissions in 1976, on 147.400MHz using (mostly) a VK3 carphone, with five watts into a ⅝ whip on top of the tin roof of its host building, on the Upper North Shore in Sydney, where it has a good view of the city, and the southern and south western suburbs. (Also, see page 34, Amateur Radio for further details).*

*Whilst on the subject of beacons, I note also in the October issue of Break-In in "The VHF Scene" columns, on 23rd May VK2s copied the VK9ZR beacon on six metres, from Willis Island. I was not aware such a beacon existed but, it may have been an attended keyer used when the operator was in the shack. If anyone has more details they would be appreciated, but in any case it indicates a very distinct possibility of six metre operation from there this Es season.*

## SIX METRES

This band is being reported as being very quiet in all areas of the Southern Hemisphere. ZL3ADT said the winter Es were very poor indeed, Jim VK3AZY says much the same thing, and I am doing likewise. There appears to have been some contacts between VK2 and ZL, around June and July, but little has come through of later contacts. From my viewpoint, the present equinox has been very quiet.

## SIX METRES OVERSEAS

From "CQ ham radio", Japan, the Northern Hemisphere summer Es produced plenty of contacts, but not covering any great distances, it seems. In the lists provided are contacts from Japan to HL1ASS, HL1QW, HL5BAS, HL2DCE, VS6ZMT, JD1BCD, VS6EL, VS6XNF, HL2GS, HL1ADN, HL2ICB, HL1ICM, HL5BMA, HL2ASH, HL2AFG, JD1BBE, HL1AJY, HL2PQ, HL1EJ, HL5BFM, HL5BAS, plus another 10 or more HL stations, DU1GF, VS6XPZ, BT1HHL, BY4AA, VS6TE, BT4RJU, HL3ARA, BY5RA, K7RWT, BY1PK, and with the VS6SIX beacon on 50.075MHz being heard almost on a daily basis, but this being the only beacon to be heard there! Contacts have been made on SSB, CW, FM, and AM, with the latter mode being as high as 50.610MHz.

Television sound signals have been heard in Japan from Russia on 49.750, 9M — TV on 53.740, BY — TV on 51.250, 9M — TV on 48.240 and 48.250MHz. The stations which have been worked on FM all appear to be above 51.000 and no SSB operation appears to be taking place below 50.100MHz. CW signals also keep above that frequency, judging by the lists. It seems reasonable to assume that generally the beacons operate below, or around 50.100, and for the present time at any rate, all other operation above 50.100, with most up to 50.200, but some beyond.

## SIX METRES — USA TO EUROPE

The opening up of new areas to six metres for the first time must be quite an event if you are an avid six metre operator, and within range of those new areas. The increasing availability of stations in the UK, and with good Es band conditions, allowed many stations in the US their first trans-Atlantic contacts. Bill Tynan W3XO, in October 1985 QST 'World above 50MHz' says it all . . .

*"The 30th July Es opening between the East Coast (USA) and the British Isles certainly ranked as one of the greatest thrills in this conductor's 37 years on six metres. Prior to this, in my wildest dreams, I had hopes that maybe, about 1990, F2 and longer operating hours for the G stations, might team up to let some of us North American Six Metre Enthusiasts add a few UK countries to our 50MHz DX rosters. I even harboured a faint glimmer of hope that some of us in the mid-Atlantic States might be able to work one or two G stations on a fleeting Es opening. As reported last month (See November AR), one such Es opening took place on 2nd July. But, who would have thought that a much bigger one would occur again so soon, and so late in the season? On top of that, it was a long opening, lasting upwards of two hours, and very wide-spread, stretching from New England to northern Florida.*

*"Those in the mid-Atlantic States fared best, W4CKD in Virginia, a suburb of Washington, made his first six to 10 metre cross- band contact at 2152, and went to work four G stations prior to 2230, when those with special six metre permits are allowed to begin transmitting on 50MHz. After that he worked another 14 UK stations. W3XO, after being alerted by a phone call from WA3DMF, worked eight Gs plus GJ3YHU and GW4BCD. Further south, W2CUK worked VP9GE (Bermuda) at 2302 and then eight Gs, the last at 2327. At 0130, W2CUK, N0EAO, and KA0NNO in Denver, and at 0138 W6RXQ. Quite an evening — working from Europe to California via six metre Es in the space of a few hours!*

*"From the other end of the contacts, G3COJ reports nine W QSOs between 2230 and 0005, to W4CKD Virginia, K2MUB New York, K3ACR and W3JO Pennsylvania, KB3QM Delaware, W2HFI New Jersey, W2CUK/4 South Carolina, W3XO Maryland, and KA4DVH Florida, which is quite a wide coverage.*

*"On 6th August, about 2245, six stations in the W1 and W2 areas worked EA4CGN in Spain, six to 10 metres, during a very intense Es opening."*

I suppose there are reasons for it, but one would have thought that with the opening on 30th July being so strong, that more actual contacts would have been made across the Atlantic. Possibly, one of the reasons more contacts are not made is that there are not a lot of operators at the moment in the UK, and the time differential has to be taken into account; there are probably thousands of W stations capable of putting a signal into Europe under good conditions, so I would imagine it to be something akin to a good JA opening to Australia, when so many stations are calling from one end that the rate of contacts becomes slow due to massive QRM levels. If there are other reasons, then I expect Bill W3XO will tell me in due course!

"The Shortwave Magazine" for August 1985, carries the following under the heading of 'Six Metres'.

*"28th June 1985 was an historic day for UK VHF operators. In the House of Commons, Mr Geoffrey Pattie, Minister of State for Industry and Information Technology, made a statement concerning the future planning of Bands 1 and 3. Part of this statement was : '. . . I am conscious that the interim Merriman Report recommended that the radio amateur service should be given an allocation in the band — ie Band 1 — and I am therefore proposing to fulfill that recommendation by allocating the band 50 to 50.500MHz to radio amateurs'."*

I am sure we are all very happy for the UK amateurs, who, for some time, have had a restricted usage of the 50MHz band, and we all hope that this will lead to a much greater six metre population in that country, with more possibilities for all to work someone there, even from VK. But, more importantly, isn't it great to be able to read of a positive statement being made by the appropriate Minister, and that is something not too often heard in todays political arena.

Norman Fitch G3FPK, who writes the 'VHF Bands' columns for 'The Shortwave Magazine', has this to say: *"Behind that simple statement lies years of hard work by the RSGB, which has*

*resulted in the UK becoming the first country in Europe to grant its radio amateurs a 50MHz band . . . It seems likely a Gazette announcement could appear by the end of September.*

*"It is to be hoped that the Society will keep the band plan simple with these out-moded calling frequencies largely omitted. SSB and CW calling frequencies are unheard of on the HF bands, so why bother with them on six metres? Perhaps we should consider not using FM mode on this band, since it is a spectrum wasting system, better suited to UHF/SHF.*

*"Of great significance was the reception at 0200, on 23rd June, of GB3NHQ by K7KV, in Auburn, Washington, on the West Coast, a distance not far short of 8 000km. What kind of propagation was that at this low point in the sunspot cycle? Quite obviously, there is much to be researched about 50MHz propagation".*

About the only additional comments I wish to make about the above couple of paragraphs is that, despite the abuse of calling frequencies by some operators, leading to the frustrations of others, there is ample evidence that the use of calling frequencies has, in the past, resulted in contacts being made that might otherwise not have eventuated. One needs only to look at a possible situation where an operator could be in the shack building some equipment, and monitoring say 52.050, and being on hand to answer a call from a station in a distant area. If you have 50 operators doing nothing else but monitoring, there exists the chance for some contacts being made. And what of 28.885MHz during Cycle 21? World-wide usage of that frequency certainly alerted a lot of people as to band conditions and many useful contacts resulted. I think the people of Europe will eventually see the wisdom of some nominated frequency to monitor, and this wisdom will come with their now given ability to make greater use of the band with all its strange happenings.

On the question of the 8 000km hearing, it could be very similar to that which prevails here when JA signals come down as far as North Queensland and they are given further help down to, say VK5, over an additional 2 000km due to Es existing between here and Queensland. 8 000km is a long way I know, but most things have an explanation when Es is around. Let us now hope the G operators can share in some of these strange, but interesting, happenings, and so add to the knowledge being built up all over the globe as a result of six metre operating.

## CALIFORNIA TO HAWAII ON TWO METRES

They have done it again! A tremendous duct formed between the Californian Coast and Hawaii, from 12 to 14th July, and stretched from the Mexican border to well north of San Francisco, and also up to 100 miles or so (200km) inland, when previously the ducts stopped near the shoreline.

Both KH6IAA and KH6HME were 8 000 feet up on the side of Mauna Loa, about half a mile (.8km) apart, which restricted their operating to some extent as they had to take turns operating on the band. Bill KH6IAA, had 40 QSOs using an IC-211 to a 100 watt amplifier, and an eight element Quagi about 12 feet (4m) above the lava flow. One of the highlights of the operation was the contact between KH6HME and N6CA on 23cm, SSB. Paul had worked Chip last year for a new world record on the band, but on CW only.

K6QXY, near Santa Rosa, 50 miles (80km) north of San Francisco, and 2 000 feet (610m) above sea level, says both KH6IAA and KH6HME had strong signals for 36 hours with the latter especially strong on 70cm. W6YKM is 100 miles (161km) inland from the coast and had contacts on two metres, obviously helped by his location 3 000 feet (914m) above-sea-level. The most inland station was K6PVS, and it is thought he may now hold the DX record for the W6 to KH6 path with a distance of approximately 2550 miles.

The whole thing repeated on 28th July, but did not last so long, however, signals again penetrated quite a distance inland. KH6IAA again worked some 40 stations, and added that the polarisation of the signals was preserved, when the Quagi was turned vertical the SSB stations were weaker. The band opened again on 14th August, but confined to northern California, the southern stations hearing nothing. Once again, KH6HME's two metre signals were heard first, then the 70cm beacon. WA6LHD, at Fairfield was able to make a two metre contact with KH6HME, despite having three mountain ranges in the pathway!

The above information was again extracted from 'The World above 50MHz' October 1985, and it looks as though the W6s are consolidating their hold on the two metre, and 70cm records by extending the contact distances further than just their coastline. This makes it all the harder for VK to snare the record again, but Albany to New Zealand might just do it, so you never know!

## THE AUSTRALIAN SCENE

John VK4ZJB, has written with details of the DXpedition to Lord Howe Island by Nev VK4ZNC, to operate on six metres. He will arrive on 20/12 and leave on 30/12. He will operate with the call sign VK9LC, with 70 watts PEP into a three element Yagi. QSL information as per the current Call Book — QTHR. Nev is requesting a nominal donation of $5 for a QSL in an effort to help with some of the costs of mounting the DXpedition to give many operators a new country. The primary frequency will be 50.050, and suggests *". . . lots of listening and CQ VK9L, not QSOs on the frequency to clutter it up!"*

John also confirms that Chris ZL7OY has been chosen to be with the meteorological team going to Raoul Island for one year, commencing October 1985. Raoul is part of the Kermadecs, and Chris has been allocated ZM8OY to 31st December, then from 1st January 1986 until the end of his stay he will be ZL8OY. QSL via Chris' XYL, Mrs C Hannigan, The Terrace, Warrington, Otago, NZ. Chris proposes operating 'all bands CW and SSB', and John is hoping this includes six metres. In the light of previous contacts from the Kermadecs, it seems very likely some six metre operation would be scheduled.

As I write this information, another note has come from John confirming Chris was definitely taking six metres with him and will operate on all ZL and VK common frequencies, and the departure date from ZL was 3rd October 1985.Thanks for the letters John, they contained good news for the six metre gang.

Eddy VK4KAA ex VK4ZEZ, has now returned to Townsville after spending some time in Melbourne, Ipswich, and Mount Isa after leaving Townsville previously. At the moment, he is trying to get his station in order again, and so far is monitoring OSCAR 10, and also six metres, but no signals on the latter band so far.

Eddy reports that recently a larger inversion over the Coral Sea produced a good two metre path to Port Moresby, and it was possible to have contacts through their repeater, using a hand-held transceiver. On two metres he also uses the VK5 pre-amp, and has had successful AMTOR RTTY contacts to Cairns on two metres. So it looks as though we will have another station from Townsville, this summer.

## 432MHz EME

Doug VK3UM, continues to have considerable success with his mostly random EME contacts. The following is a resume of recent QSOs with the first report being that sent from Doug, and the second being the report he received.

*7/9: This was a sched weekend; 2145 DL9KR 559 559; 1709 VE4MA 439 339 with bad libration fading; 2325 DJ6MB 449 439; 2357 JA4BLC 339 349.*

*4/10: 2000 DL9KR 559 559; 2023 YU1AW 559 559; 2040 G3LQR 439 439; 2112 LX1DB 439 439, this contact with Luxembourg was a new country for Doug.*

*5/10: 1452 N4GJV 439 449, again bad libration; 2022 DJ6MB 449 339; 2115 G3SEK 339 339; 2140 DF3RU 449 439.*

Scattered amongst the libration fading there are some very good signal reports listed above, good enough for SSB, one would think.

In addition to the above, Doug has maintained contacts on the path to Sydney, with Canberra on the way. Sunday 1/9 on 432 produced contacts with VKs 1ZT, 1BUC, 1ZQS, 2BE, 2QP, 2DVZ, and 2ZAB. Don VK3YV also worked into Sydney, while Lionel VK3NM heard VK2ZAB. On Saturday, 5/10: VKs 1BG, 1VP, 1AU, 1BUC, 1ZZT, 2ZAB, and 2ZRU. These type of contacts always seem to be possible when the various parties are home and available. On Sunday 6/10 Ross VK2ZRU was worked by VK3UM four times using aircraft enhancement!

Doug also indicates he will be signing VK75A for contacts via the moon during the prescribed time the call sign can be used. Thanks for the info Doug.

## ROSS HULL CONTEST

This memorial VHF contest is scheduled to commence at 0001 UTC on Saturday, 14th December, and conclude at 2400 UTC on Monday, 6th January 1986. Again there have been some rule changes which is bound to bring some flak, but one would have to feel sorry for the succession of contest managers who have tried to arrange the rules of this contest to be fair to as many people as possible. One important change has been the shortening of the period to about three weeks, and another, the one contact per station per band per UTC day. Such changes have resulted from the pressures applied to the Contest Manager by correspondence from contestants. Before knocking these two changes too much, why not try it for this year and see what the results are. Incidentally, it would not have taken much more correspondence to have all Ross Hull contacts not less than 200km for all bands! Such a rule might have caused some interesting situations, especially at the higher frequencies. Perhaps contestants might like to comment to the FCM on that when submitting their logs.

Looking at the revised scoring I am sure there will be some grumbles, but if you are fair-minded you would have top concede there is no hope of a scale of points which will suit everyone, and there must be some give and take. After all, even VK5LP has to operate under the same rules, and I would give a lot, at times, to live in some of the great VHF locations that some operators enjoy, when compared with my poor location, but I have not used that as a reason for not operating. To live in the metropolitan area of a city, with its inevitable large VHF/UHF population, is not all detrimental when you go up in frequency — try doing some UHF operating from out in the sticks, particularly if the sticks are not located between two capital cities.

All the above paragraph simply means is *". . . let's give it a try this year, see how the changes shape up, but send any helpful comments to the FCM with your logs".* Also, if you care to go to a little more trouble, why not send me a copy of your log front sheet, and your comments so they could be aired throughout the year, rather than they be held by the FCM until it is time for another contest. I am prepared to extract anything from your comments, which is reasonable and generally constructive, and give it some mileage through this column. See you in the Ross Hull.

## OTHER NEWS

A new Region 1 23cm record was established on 29th June 1985, between David G6LEU, and EA8XS, between 1940 and 2012 UTC, with reception apparently in 10 to 15 second bursts. The distance has been calculated as 2620km. The world record for this band is held by KH6HME and N6CA, on 24th June 1984, with a distance of 3997km. This note is recorded in 'The Shortwave Magazine', August 1985.

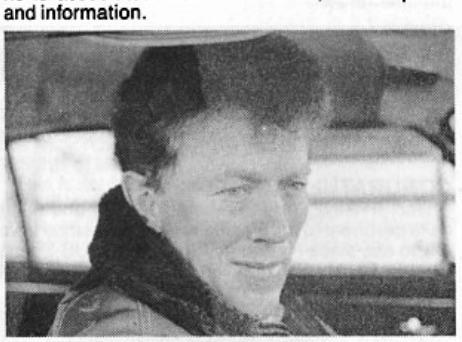
From the same source is the news that a new world record for 144MHz EME was established on 26th May 1985, between G3POI and ZL2BGJ, with a distance of 18 821km, which is only 1 184km short of the maximum possible distance which could be achieved with someone in Spain. G3POI used a 160 element collinear array and ZL2BGJ, an array of four Yagis and a Henry 2002 amplifier. Congratulations to both operators.

The Annual VHF/UHF Table of 'The Shortwave Magazine' shows the top scorer being GW4TTU, with 19 countries confirmed on two metres, eight on 70cm, and five on 23cm. The second top station, G4TIF, incidentally has 12 countries on

70cm. I suppose that is one advantage of having so many countries within the range of your station in the UK. One wonders what some of the scores must be for European mainland operators, right in the centre of Europe, where distances between countries are even shorter? Perhaps mutual QRM is a limiting factor under these circumstances. I also note that G4TWD had 350 QSOs on CW for the year, on 144MHz!

Mark VK0AQ, at Mawson, continues to pile up contacts via OSCAR 10, judging by the exotic QSL cards arriving here, from time to time. Mark suffers quite a deal from local QRM at his base, which can make 20 metre contacts difficult at times, hence the OSCAR operating. The VK0MA beacon appears to be still running on six metres.

Gil VK3AUI, recently returned from an extended round-the-world trip, has provided this photograph of Johannes LA6HL. Johannes was operating portable in Iceland and is pictured at his location in a Reykjavik camping ground. Johannes has visited Iceland a number of times, and works 144 and 432MHz meteor scatter. He also has 50MHz equipment. A two metre beacon is being installed in Iceland by Johannes, with the help of a group he is associated with. Thanks Gil, for the photo and information.



**Johannes LA6HL.**

**Johannes' Meteor Scatter Antenna.**

Local news on VHF is scarce this month, maybe the Es will start to come along soon and help the situation. With this issue I commence my 16th year of compiling these notes. Thanks once again to those people who write to me and send information, and to the Clubs who send their bulletins and journals.

As it is December, I wish everyone the compliments of the season, and plenty of useful DX in 1986 — the year of South Australia's 150 Jubilee.

Closing with the thought for the month — *"PUSH may get you anywhere in this world — except through a door marked PULL."* 73 The Voice in the Hills.

**AR**

# HIGHLIGHTS OF AMATEUR WIRELESS HISTORY IN AUSTRALIA

**APRIL 1935:** Mr Kenna (ex VK4FK) and Mr Billin of the PMG Research Department demonstrated 56 MHz equipment in the Queen Street rooms of the Victorian Division of the Wireless Institute of Australia. Two-way 'phone communication was established with a portable-mobile transceiver below the rooms in Queen Street and by means of a loudspeaker in the meeting room progress of the mobile station was followed as it moved along Queen Street. At this time there were not many VHF enthusiasts so this demonstration inspired great interest and brought into being the WIA 56 MHz Group. The late John Moyle VK2JU, was an early 56 MHz experimenter.

**1934-1935:** Amateur Radio magazine carried an — "Operating & Experimenting Section — covering 28 MHz, 56 MHz, 112 MHz and 224 MHz. The Gadsden Trophy was awarded to the Group for outstanding work on these bands over the period from June 1935 to June 1936. It was the first Experimenters Trophy for annual presentation. The Queensland group notched up the Australian distance record of 70 miles (113 km) in the 56-112 MHz region in 1935 and in May of that year were setting up for tests over a 150 mile (241 km) path. The Queensland Group also achieved duplex contacts between two flying aeroplanes and two moving cars; one plane directed one of the cars around the suburbs in which the tests were conducted.

**SEPTEMBER 1935:** First organised 56 MHz Field Day arranged in Victoria following the success of VK2 and VK4 tests from aeroplanes and motor cars. Twelve sites selected were at Mt Dandenong, Mt Macedon and Arthur's Seat. Geelong amateurs were alerted in case Port Phillip Bay was spanned! Distances of 45, 70 and 80 miles (72, 113 and 129 km) were achieved.

**OCTOBER 1935:** First 28 MHz contact between New South Wales and Europe made between VK2LZ and F8VS. First 28 MHz contact between Queensland and Europe was between VK4EI and ON4AU in the same month.

**1935:** The first transmitter for the WIA Victorian Division using the call sign VK3WI was constructed by Bill Gronow VK3WG, for the Institute's activities at the Essendon Aerodrome. It was later rebuilt by VK3WG and Bob Cunningham VK3ML and operated from Law Court Chambers at 191 Queen Street, Melbourne, In the post war years after WW2 it was again reconstructed for use at the same site by the late George Glover VK3AG.

**1935:** The Lakemba Radio Club in New South Wales published a successful official Club paper — The Lakemba Review.

**1935:** The Tasmanian Division of the Wireless Institution of Australia staged its first State Field Day in March of 1935, held at Campbell Town 80 miles (129 km) from Hobart at which the northern amateurs met the southern amateurs.

**OCTOBER 1934:** The Victorian Division of the WIA staged Australia's first DX Contest on the occasion of Victoria's Centennial Celebrations. The Contest Manager was Bob Cunningham VK3ML. Prizes were presented by the Chief Inspector of Wireless, Mr J Malone, in the studios of the commercial station 3DB Melbourne. The Centenary DX Contest was the forerunner of the first VK-ZL Contest held in October of the following year.

**SEPTEMBER 1934:** The Amateur Radio Association (NSW) set up an amateur station at the "Gentlemen's Hobbies Exhibition" held in aid of the Industrial Blind Institute. It was organised by VKs 2UX, 2FQ and 2HZ.

**OCTOBER 1933:** The Melbourne amateurs gave a dinner to the country amateurs.

**1935:** The Wireless Institute of Australia celebrated its Silver Jubilee as the oldest amateur organisation in the world having been founded in New South Wales in 1910 by a group of wireless experimenters.

**OCTOBER 1934:** First contest organised by the WIA titled — The Five Point Contest. The second contest was the — The Fisk Trophy Contest in 1935 run on a six monthly basis for interstate contacts with cypher interchange with each QSO. The trophy was presented by Mr Ernest Fisk (later Sir Ernest Fisk) of AWA Ltd. The suggested call in the contest was — CQ Fisk. Sir Ernest Fisk was also an early President of the WIA in NSW and also of the Australian Radio Amateur Transmitters League (ARATL).

**1928:** 'Phone Section of the WIA in charge of frequency allocation of crystals for the 200 metre 'Amateur Broadcasters'. Stations had to meet a technical standard before crystals were allocated. The quality of some transmissions were frequently superior to the commercial transmissions of the day. In October 1934 a 'Phone Contest was held in which the quality of recordings and speech were judged. Some authorised stations utilised YL announcers.

**OCTOBER 1933:** The first issue of the WIA's own magazine — Amateur Radio — was published in octavo format by the Victorian Division of the WIA. The Federal Council of the Institute endorsed it as the Official Organ of the Institute. During World War II the printed publication ceased due to costs and the temporary cessation of amateur radio on the air. It was replaced with a 'roneoed version' until 1945 when reprinting commenced in a quarto format.

**1933:** The licensee of the famous station A3BY, OA3BY, VK3BY, (Mr Holst) tells the story of how, in 1912, he used a spark transmitter to work out school lessons with his pals!

**AR**

# HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

The writing of the last column for 1985 has come around again, seemingly very quickly and the year has flown past.

Unfortunately, the solar cycle on its downward trend has not been conducive to enthusing the newcomer to seek DX, however the DX is still there, if you are in the right place at the right time. When one tunes across the band, it appears 'dead' but, what one does not know is, there are also possibly others tuning and not calling at the same time. As New Year resolutions are coming up, why not make it a practice every time you switch the transceiver on, to give at least three calls.

Next months column will present another amateurs view point of DXing, as she has known it for in excess of half a century, which has allowed her to join the ARRL DXCC Honour Roll, to the best of my knowledge the only VK YL to achieve this honour. Incidently, this amateur has been a member of the WIA for 56 years.

To all readers, I would like to extend Seasons Greetings for 1985, and I hope that 1986 bestowes health, happiness and of course lots of good DX, even if the conditions are not what they could be.

## QSLING

A chore, to us all at times but a necessity, as in my opinion a card compliments a contact that you have made with a new station, a friend you have just made and may never have the pleasure of meeting, yet will meet from time to time in the ensuing years.

Jan and Jay O'Brien, KH6HHD and W6GO respectively, in their invaluable publication the W6GO/K6HHD QSL Managers List, issue number 67, have written an excellent article termed 'Successful QSLing'. I have decided to reproduce this article in an adapted form to suit conditions applicable in Australia which I am sure will be of interest to all who QSL, either directly or through the bureaus.

Jan and Jay state *"Getting QSLs is important to you. Otherwise, if it wasn't you would have little interest in this publication. Our goal is to help you get those important QSL cards. We have been gathering information from many sources and have presented several columns for you with hints on QSLing."*

Here is a recap of the most important points.

### THE BASICS

At all times use 24 hour UTC time and UTC date, this will then agree with the DX stations log and save the operator, or if he is lucky enough to have a manager, the precious commodity of time. Many operators and managers place the cards that do not agree with the log into a separate file to be attended to when they get around to it, which may be a week, month or never in some cases. It is easy to see the importance of the use of a universal time. Even in Australia with the advent of daylight saving time, there can be a huge variance, particulary if a station is working 60 stations per hour, a conservative figure for a good operator.

### COMPUTER GENERATED CARDS

If one uses a computer, as I do, it is convenient to place the year, month, day, and time in that sequence when keying the log in for sorting purposes. Some countries place the month first, followed by the date and year, eg: The 1st of April 1985 on my card becomes 1985/04/01 and on an American card it could be written as 04/01/1985. Imagine yourself in the recipients shoes. *When did this station work me? Or did he or she work me?* So into the too hard file, therefore on those special cards, write or print the month in or programme the 'wonder box' to do it for you. The same applies with time. A five minute incorrect time could mean five contacts difference, not much to look for but it may be over a page, which becomes time consuming. So precise time in the log is essential.

### THE CARD

Cards should not exceed the dimensions of 140mm x 90mm and be on a card not heavier than 250 grams per square metre, if one intends to use the bureau. The reason — economics!

It is essential, when filling in a card, that the information is clear and accurate and that there are no alterations. If you unfortunately make a mistake, destroy the card and start again. An altered card will not be accepted for DXCC accreditation or most awards and therefore becomes pasteboard, nice to behold but heavy on the wallet, particulary if you are sending it direct instead of using the bureau facilities.

### SENDING DIRECT

If it is a rare station in a country that you have not received accreditation for, my advice is to QSL direct, if you can afford it. As your chances of receiving a card fairly promptly are quite high. It is essential that one sends a self addressed envelope (SAE), accompanied by adequate International Reply Coupons (IRCs) or a 'green stamp'(one American dollar), the latter is valueless in many countries and in some cases cause the recipient many problems.

### SENDING BY THE BUREAU

Each VK bureau has its standards, and it is advisable to check — but, to make it easier for all, the following ground rules will assist.

Remember, volunteers run the bureaus, and time is precious, so pre-sort the cards alphabetically, and numerically, after having placed the recipients call sign in 12mm high, legible lettering at the top right corner of the card. This can be on either side, whilst viewing it in a horizontal position.

If there is a manager involved, it can be placed underneath in smaller lettering.

Your attention to the above will be greatly appreciated by all bureau personnel throughout the world — and, of course, expediate your card to the recipient.

## MAIL CENSORSHIP

According to media reports, Pakistan AP2, has begun censorship of all incoming mail, except those of a diplomatic nature. Currency is strictly taboo, so please don't embarrass the recipient.

It is believed there is evidence of mail being inspected also in the Peoples Republic of China, particularly if photographs are included and it has been proved that material of an offending nature is confiscated and destroyed. Again please beware of embarrassment to your fellow amateur, and the image of our country.

## PROFILE OF A MANAGING EDITOR

I read, amongst many other magazines, World Radio, and quote a lot of their material. This excellently presented monthly, that is entirely devoted to amateur radio, is edited under the management of Christine KA6TAL, who gained her Technician Licence three years ago at the age of 27. This lady, apart from being a housewife for five years, does freelance journalism, and is involved in a little public relations work for a nature centre.

Christine, a person with boundless energy, is heavily committed with church work and has other hobbies including reading, playing the guitar, hiking, photography, and her duties at the local nature centre. Christine, keep the excellent standard up. It is known that all your readers appreciate your untiring efforts, as do the folk at this QTH.

**Chris at work.**

## NEW TAIWAN AMATEURS

BV2DA Feng, ex XW8BP, BV2FA Shane Tang, an ex HS operator, BV2GA Randy Wan, ex KA6LGA, BV5HA G T Chang, BV6IA W L Chen, BV7JA C L Soo, BV7KA S L Teng, BV7LA C M Tsai. Congratulations and welcome to the above newcomers who will take the 'heat' off Tim BV2A/BV2B, who has given so many a new country for their DXCC over so many years. Incidentally Taiwan is divided into nine different call areas with the 0 being reserved for visitors.

Further examinations are expected to be held in the near future.

## SMOM

It is reported that Mario will be active with 1A0KM in February. If you have not worked it place a note on next years diary as Mario I0MGM, would like to keep it on the 'much' wanted list! ! Hence, very few operations per year can be expected.

## CONGRATULATIONS

Isao JH1RNZ, also known as 3D2RN and other calls pertinent to the Pacific area, has a smile from ear to ear, since he had a QSO with the US Space Shuttle CHALLENGER, on both two metres FM and colour SSTV on the 4th and 5th of August. Congratulations Isao on being the first and probably only JA operator to succeed.

## BEREAVEMENT

It is sad to relate that confirmation has been received of the deaths of JI3USA, JF3NAK, and also JO1PSU, with her two children. These amateurs were killed in the tragic Japan Air Jumbo Jet air crash in the mountains of Gunma on the 12th of August. From all amateurs, condolences to the families, not only of the amateurs, but to the other passengers involved in this unfortunate disaster.

Also, it would be remiss of me not to mention the disaster in Mexico City, where amateurs, played a magnificent role in assisting in rescue operations and the transmission of emergency traffic. Again condolences to all who lost loved ones and friends in this horrific natural disaster.

## KNOW YOUR COUNTRY

Bob Winn W5KNE, has written an excellent article on the much sought after Galapagos Islands, which is reproduced for the interest of all readers.

The Galapagos Islands, or Archipelago de Colon as they are officially known, are astraddle the Equator, 960 km west of South America and 1250km southwest of Panama. The islands were named by early visitors for the large tortoises that inhabitated the islands. The Spanish word for tortoise, is Galapago.

The Galapagos, which includes 13 main islands and many smaller islets and rocks, has an area of 7800 square kilometres. The largest island, 130km long Isabela has five major volcanic peaks, the highest having an elevation of 5600 feet (1700m).

The islands are the tops of large volcanoes. Some volcanic activity (fumaroloes) is still evident on the islands of Isabela, Fernandina, Pinto and Marchena. The last volcanic eruptions occurred in 1963 (Isabela) and 1968 (Fernandina).

Even though the Galapagos are somewhat isolated they have a long and rich history. The first known visit to the islands was by Fray Tomas de Berlanga, Bishop of Panama, in 1535. However, the islands were relatively unknown for another 200 years.

By the late 1700s, whalers and fur seal traders visited the islands for food and water. The hunters slaughtered the fur seals, iguanas and giant tortoises were often taken alive on board for food

and sport as they could survive for long periods without food or water.

Before being claimed by Ecuador in 1832, the islands were often the base for pirates and generally ships from many nations. During the war of 1812, the US frigate ESSEX used the islands as a base. It wasn't till after Ecuador claimed the islands, that they became permanently inhabited.

Probably the most famous visitor to the Galapagos was Charles Darwin, the father of evolution. Darwin visited the islands in 1835 with the HMS BEAGLE. Many of his ideas concerning 'evolution' originated from studies made while visiting the islands.

In 1959, the government of Ecuador proclaimed all uninhabited areas of the island group as a National Park and enacted laws to protect the native wildlife.

I know Bob, and his XYL Bonnie, put considerable research into this article and it is trusted that you will have something to chat about with your next QSO to that part of the world.

## DISAPPOINTMENT

It was a disappointment as to the number of replies that I received for the survey of wanted countries, as requested to readers in a previous issue. The Post Box wasn't crowded to say the least.

Out of the number I received, the following countries predominated: 3Y0 (St Peter 1 Island), 3Y0 (Bouvet Island), 7O, ZA, S9, CE0 (San Felix Island), PY0 (Trindade), SV (Mt Athos) and 1A0KM (Knights of Malta).

This is not by any means a true evaluation of the needed countries required by VK amateurs and SWLs, as it does not include any SWLs or Novice operators figures. The reason is that none were submitted.

No one included their interest in the WARC bands, even though they don't count for awards or DXCC, so no figures are available. This column was not the only one to suffer a lethargic response. The same happened from European operators, with only 30 submitting their 'wanteds' to the 'DX Bulletin', out of a total of 582 returns. The overall figure was 768 last year. My question to all readers — is DX what it used to be? Has it become a 'black box' operation, or is it a lack of interest due to the propagation conditions which are nearly at the bottom of the Solar Cycle.

## A LADY OF NOTE

Many VK CW operators have worked Liz W3CDQ, over the last half century, and they have the card to prove it. However, very few of these operators realise that Liz still uses a 1922 hand key and will celebrate her 87th birthday on the 11th of this month. Quite an achievement for Liz as she has been on the air 62 years.

Liz remembers, and talks quite often about, the time in 1917, when, as a young girl, she took a radio course with the hope of becoming a ships operator, after her completion and passing of the course. Her hopes were dashed due to World conditions at that time, but before long, with her new commercial licence, she was teaching code to hospitalised veterans wishing to update to new positions in the forces.

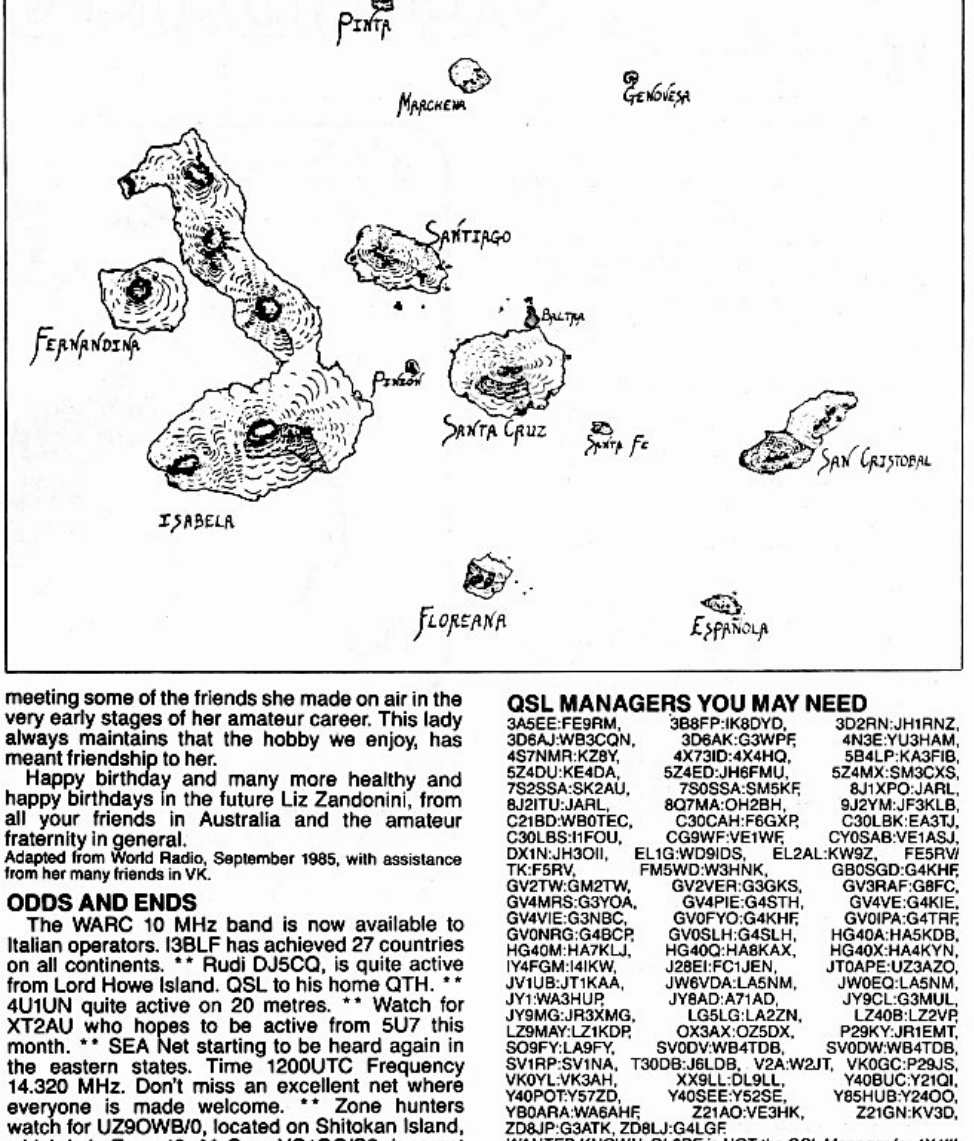
In 1921, Liz obtained a position with the Bureau of Standards, as the only lady in its staff of 21 radio personnel. Her duties were varied to the extent of taking measurements, the winding of coils, making receivers, translating items from foreign magazines, to assisting in the publication of a book titled 'How To Build A Crystal Set From An Oatmeal Box', of which 20 000 copies were sold.

This lady built a five watt, one valve transmitter, and also a one valve receiver, after gaining her amateur licence in 1922. Since then she has made innumeral friends throughout the world and is continuing, since her retirement from the Bureau of Standards, with a rig running 100 watts to an indoor multi-band dipole antenna that is located between the roof and ceiling.

Liz, has been a member of her national society, the ARRL, for 55 years, and belongs to many clubs and the Society of International Radio Engineers. In a letter to a VK friend, she remarks that she recently attended a YL convention, where some 200 attended, and had the privilege of meeting some of the friends she made on air in the very early stages of her amateur career. This lady always maintains that the hobby we enjoy, has meant friendship to her.

Happy birthday and many more healthy and happy birthdays in the future Liz Zandonini, from all your friends in Australia and the amateur fraternity in general.

Adapted from World Radio, September 1985, with assistance from her many friends in VK.




## ODDS AND ENDS

The WARC 10 MHz band is now available to Italian operators. I3BLF has achieved 27 countries on all continents. ** Rudi DJ5CQ, is quite active from Lord Howe Island. QSL to his home QTH. ** 4U1UN quite active on 20 metres. ** Watch for XT2AU who hopes to be active from 5U7 this month. ** SEA Net starting to be heard again in the eastern states. Time 1200UTC Frequency 14.320 MHz. Don't miss an excellent net where everyone is made welcome. ** Zone hunters watch for UZ9OWB/0, located on Shitokan Island, which is in Zone 19. ** Gary VO1OC/S2 does not hold acceptable credentials for DXCC. ** Bernt A24BJ, quite active. QSL Private Bag 7, Francistown, Botswana. ** Listen for Chris VK0CC, ex VK2BCC who is on Heard Island. It is unlikely that he will be very active due to the workload. Listen between 14.210 and 14.150 MHz. ** John S79JW quite active, with strong signals. QSL to PO Box 487, Victoria, Seychelles.

## CARDS ROLL IN! !

Stephen VK2PS, reports that he is still flying with the 'VI' prefix and running his 'commercial' regarding the WIA's 75th Anniversary. It apparently brings a lot of DX out of the 'woodwork' that would not normally appear.

Stephen has had another batch of cards from the Bureau, including 25 SWL cards from the USSR and pasteboard from BV0AC, BY1SK, HB0NL, PP8JJ, PT2VE, TI2ANL, TI8CBT, YO3CD, YOP8WCY and ZS1OU.

The way Stephen is working the DX, I recommend to him that he buys up on pens, to fill in the onslaught of cards he is going to receive.

Karen KA0CDN, has found a way of quick returns to get a J5WAD card. Karen used the three envelope trick. In her own words she says *"I put our cards in one envelope along with 2 IRCs and a SAE and wrote the QSL Managers call on the envelope. Do not seal the envelope. Send along with other cards to Box 88. Cards were returned in our SAE with Soviet postage stamps and rubber stamped from U QSL Bureau, Moscow, Box 88".*

## QSL MANAGERS YOU MAY NEED

3A5EE:FE9RM, 3B8FP:IK8DYD, 3D2RN:JH1RNZ, 3D6AJ:WB3CQN, 3D6AK:G3WPF, 4N3E:YU3HAM, 4S7NMR:KZ8Y, 4X73ID:4X4HQ, 5B4LP:KA3FIB, 5Z4DU:KE4DA, 5Z4ED:JH6FMU, 5Z4MX:SM3CXS, 7S2SSA:SK2AU, 7S0SSA:SM5KF, 8J1XPO:JARL, 8J2ITU:JARL, 8Q7MA:OH2BH, 9J2YM:JF3KLB, C21BD:WB0TEC, C30CAH:F6GXP, C30LBK:EA3TJ, C30LBS:I1FOU, CG9WF:VE1WF, CY0SAB:VE1ASJ, DX1N:JH3OII, EL1G:WD9IDS, EL2AL:KW9Z, FE5RV/TK:F5RV, FM5WD:W3HNK, GB0SGD:G4KHF, GV2TW:GM2TW, GV2VER:G3GKS, GV3RAF:G8FC, GV4MRS:G3YOA, GV4PIE:G4STH, GV4VE:G4KIE, GV4VIE:G3NBC, GV0FYO:G4KHF, GV0IPA:G4TRF, GV0NRG:G4BCP, GV0SLH:G4SLH, HG40A:HA5KDB, HG40M:HA7KLJ, HG40Q:HA8KAX, HG40X:HA4KYN, IY4FGM:I4IKW, J28EI:FC1JEN, JT0APE:UZ3AZO, JV1UB:JT1KAA, JW6VDA:LA5NM, JW0EQ:LA5NM, JY1:WA3HUP, JY8AD:A71AD, JY9CL:G3MUL, JY9MG:JR3XMG, LG5LG:LA2ZN, LZ40B:LZ2VP, LZ9MAY:LZ1KDP, OX3AX:OZ5DX, P29KY:JR1EMT, SO9FY:LA9FY, SV0DV:WB4TDB, SV0DW:WB4TDB, SV1RP:SV1NA, T30DB:J6LDB, V2A:W2JT, VK0GC:P29JS, VK0YL:VK3AH, XX9LL:DL9LL, Y40BUC:Y21QI, Y40POT:Y57ZD, Y40SEE:Y52SE, Y85HUB:Y24OO, YB0ARA:WA6AHF, Z21AO:VE3HK, Z21GN:KV3D, ZD8JP:G3ATK, ZD8LJ:G4LGF.

*WANTED KNOWN: DL3BE is NOT the QSL Manager for 4X4II!*

## WORKED ON THE EAST COAST

**21MHz**

KA7DSL* and KH6IM*.

**14MHz**

4K1A, 4N2D, 4X6KA, 5N8ZHN, 5W1DZ, 6Y5AC, 8R1RPN, 9M8GH, 9Y4GR*, 9Y4NN*, 9Y4NW, AP2AU, AP2ZA, BY1SK, BY5RF*, C21RK, CN8CC, CN8MB, CT4NH, EA7TU*, EA8ANR, FO8JB, FW8AF, G0BSD*, G3EDM, G3YSV, GD4PVT, GJ3AWR, HA5OG*, HB9CJH*, HL9JJ, HS1ER, IS0CPU, J28E, JW5E, LA6WEA, LA8PF*, LZ2PO, OA4OH, OE6EEG, OH6AD, OK3EY, OZ4BO, PA3CZO*, PA3DSM, PP8HL, SV1DO, SV1OL, TA1E, UC2ABF, UC2LCC, UH8EA, UQ1GWW, V85HG, VK0AK, VK0DJ, VK9NI, VK9NM/LH, VK9NM/LH*, VR6JR, VS6CT, VU2CK, YV5ANE, Z21BP, ZK1RE, ZL7PA, ZM7PM and ZS2OM.

**1.8MHz**

FK8DK*, VK6HD and W0ZV.

** Denotes CW operation.*

## THANKS

Sincere thanks are extended to the following: The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, BARG NEWSLETTER, CQ-QSO, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST, KH6BZF REPORTS, LONG ISLAND DX BULLETIN, NEWSLETTER of the NATIONAL INSTITUTE OF HYDERABAD, OLD MAN, QRZ DX, RSGB DX NEWS, THE WESTLAKES AMATEUR RADIO CLUB NEWSLETTER and the PAPAKURA RADIO CLUB NEWSLETTER. Magazines including, BREAK IN, cqDX, JA CQ, JARL NEWS, KARL NEWS, QST, RADCOM, VERON and WORLD RADIO.

Members who have contributed include VKs 2PS, 3YJ, YL, and G3NBC. Overseas amateurs include DK9KD, G1EOD, KB6OAW/KH2, ON7WW, W3CDQ, WB6GFJ, ZL1AMM and ZL1AMN. To all readers good DXing and Seasons Greetings from this QTH to your QTH. Sincere thanks are also extended to all subscibers who have taken the time to assist in making this column possible throughout the year.

**de Ken VK3AH.**

**AR**

# POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

## ODDS 'N' ENDS

This month, I'd like to catch up with some of the correspondence, and I'll start with a subject that is dear to my heart — the unofficial, unsponsored, and no-prizes-but-self-esteem competition to find the World's Biggest Key. We have two more entrants! I hope they will stimulate competitive activity out there, but it's necessary to remind you once again of the rules of the competition. . .

". . . there are no rules. It is difficult enough to determine what constitutes a key, without worrying about terms like 'biggest' ".

First entrant is our friend Bill Martin VK2COP, the Federal Intruder Watch Co-Ordinator, who wrote to comment on my column about intruders. Bill says, *"Rarely have I ever undertaken an endeavour which has proved to be so frustrating, and lacking in finalisations. But the rain finally wears down the stone, and, even if we have the occasional success, then the effort has been worthwhile."* I am sure all of you are grateful for Bill's efforts on our behalf, and will continue to give him your support.

Bill says he is not a contender for 'keeper' of the World's Biggest Key, *"but let me tell you this. . . Sometimes, when I am tired, and the conditions are bad, my key SEEMS to be the largest key in the world, HI".*

A flattering and welcome letter from Douglas VK4VLJ/MM, aboard the JAVELIN enclosed the artwork for a proposed QSL card. I am not too sure of the degree of accuracy with which the drawing represents the actual communications facilities on the JAVELIN, but, as Doug quite rightly points out — *". . . as you have taken a 'no rules' position (most wise, et diplomatic (thanks, Doug)) I believe that a theoretical key is as valid as a physical one".* That's true, I think, or at any rate appears to be within the spirit of the competition, but what we lack here is a scale. Without the measurements of the theoretical key, or at least of the actual JAVELIN, it is difficult to assess a ranking. I mean, how do we know this nautical scene isn't inside a theoretical bottle?

Well, much as I would hate to take the grand prize away from Doug on a technicality, you must remember that I am by birthright a genuine American, and we learned a thing or two about technicalities in the process of losing a certain nautical mug. I am fore-shadowing a grand effort by the Adelaide Hills Amateur Radio Society, and ask you to bear in mind that, as the author of the rules, I am in a very good position to exploit them to our own advantage.

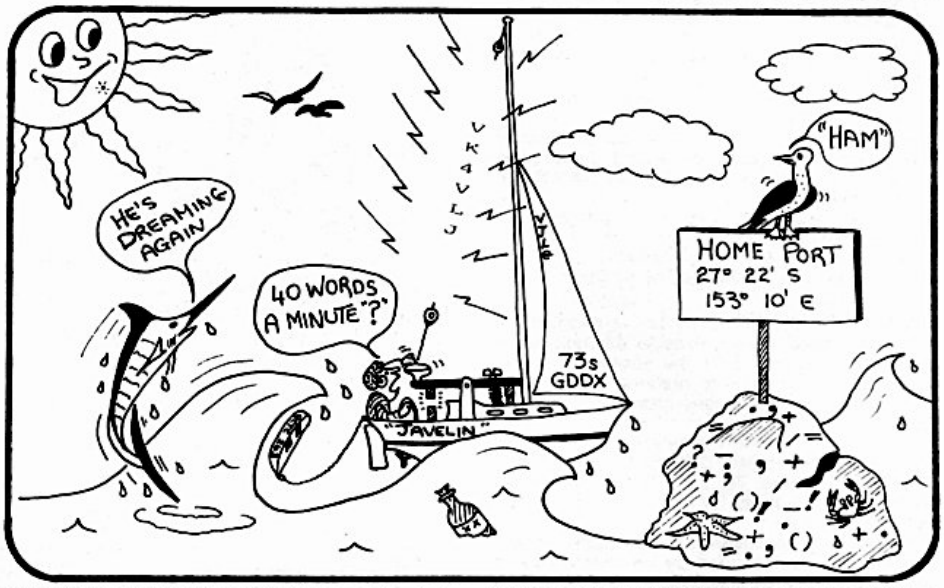
*Any other takers?*

Changing the subject, the balance of opinion as to whether Novices could or should be granted CW-only privileges on other bands, judging by my correspondence, is just that — balanced. Some very strong points of view were expressed on both sides of the issue, but I think overall there was a sufficient level of interest to justify a look at it by Federal WIA. To this end, I will write to them at my earliest convenience (as we say in the business), and ask them to consider the matter.

Opinion was not divided on the subject of a handbook for CW operators. The response was unanimously in favour, and those of you who wrote will, I trust, be pleased to learn that the negotiations are under-way.

My article on standards drew a lot of correspondence, and I was pleased that there are others who feel strongly about the future of CW. On that note, I would like to quote a large portion of the letter from Ken VK5PKP. . .

*"Obviously, you are one who perceives CW as an integral part of amateur radio. I would suggest that the majority of license holders today see it merely as a nuisance to obtaining a particular level of license, especially from Novice to Full Call. On the other hand, it can be seen as both a status symbol, ie; 'I can work 20WPM,' or by the amateur association as a covert way of keeping amateur radio 'pure'. The latter I suspect. There is no real reason for needing CW qualifications, nor for that matter is there reason for more than the barest theoretical knowledge in order to become licensed.*




*"In fact, I would say that todays advanced technology caters to the amateur in such a way as to require only a basic understanding in order to operate. Latest equipment requires knowledge equal to that of a microwave oven or video recorder. It is easy then to understand the amateur service's paranoia about CW and exams. As for regulations, they are legislated to prevent interference with other radio services, and with an exam, are an obvious way in which a government can regulate the amateur service. CW today is an adjunct to that regulation. My apologies for these old arguments.*

*"In any case, CW is not the popular force it should be, and to some, is only an interest in, perhaps, the same manner as QRP. So what is to be done to convince newcomers to our hobby that CW is equally as important and fulfilling as any other aspect of amateur radio? One thing, keep the mystique, but get rid of the mystery. The mystique of Morse code, enabling the world to establish communications early this century, is worth promoting; the fear that it is highly skilled and difficult to master should be denied.*

*"Perhaps we could look at CW more in terms of the international scene rather than just locally. That is, code skills are a common requirement to most amateur services and because of different frequency allocations, could be the only way to communicate with select licensees abroad. I would support the idea of individual awards or certificates, but to me this might be 'preaching to the converted.'*

*"What I personally would like to see is wider privileges for CW. I see no good reason why* **any** *licensed amateur should be restricted to any band here in Australia, but at the same time, appreciate both the DOC and WIA views on this. What about allowing, for example, those with Novice licenses wider access to bands, CW only? It would be more rewarding to the Novice, and possibly stimulate them to further study. It may be the means by which limited calls might also become more involved. On the other hand, if I could work 20 and 40 metres CW I might never consider upgrading to full call. Oh well. . ."*

A thought provoking letter. Especially since we brass pounders must be concerned, not merely with getting amateurs interested in CW, but in getting non-amateurs interested in radio in the first place. The CB boom is over, and we will have to get our act together if we want to preserve the hobby. Get someone interested today!

One last light touch — the smiling chap's arch-rival sent me a brochure recently containing this high-tech description of a 'field-strength/SWR meter'. 'Reads SWR, both forward and reflected, to 1kW'. (!) CU next month.

AR

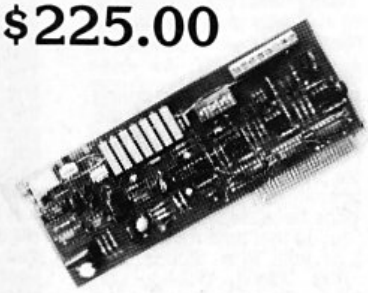
# EASTCOM
# EASTERN
## COMMUNICATIONS CENTRE

COMMUNICATIONS, ELECTRONICS AND COMPUTERS

**168 ELGAR ROAD, BOX HILL SOUTH, VIC. 3128**
**Phone enquiries: (03) 288 3611 or 288 3107**
**CONTACT — Keith or David**
**HOURS — Mon-Fri 9-5.30, Sat 9-12**
**BANKCARD WELCOME OR WE CAN ARRANGE FINANCE**

KENWOOD


**$225.00**



# HAMPACK III MODEM

**Turn your APPLE II & IIE or compatible computer into a communications terminal. Send and receive Morse code, RTTY and ASCII at any speed from APPLE peripheral slot. Complete with software and instruction manual.**

*FEATURES ARE:*

- ★ *10k receive buffer*
- ★ *10k transmit buffer*
- ★ *Split screen*
- ★ *Save buffers to disk*
- ★ *Retrieve text from disk*
- ★ *Brag statements*
- ★ *Auto CQ, ID, QTH, etc, etc.*
- ★ *Many other features too numerous to mention here*
- ★ *2125-2295 Hz + 1300-2100 Hz Tones (1200-2400) opt.*

# COMPUTERS & ACCESSORIES

## IBM COMPATIBLE COMPUTERS

*Apple Compatible Computers*
*Vectorio 64Z*
*Vectorio 64ZS*
*Do'Lingo 128k*
*Parallel & RS232 outlets*
*RGB & PalColour*

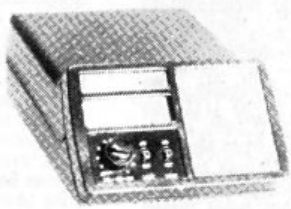
*Disc drive printers. Green screen monitors plus most Apple peripheral cards and accessories.*

KENWOOD **TS-711A**
2 m All mode Transceiver

KENWOOD **TS-430S**
HF TRANSCEIVER

KENWOOD
TR-2600A

AOR **AR2001 SCANNER**



WORLD'S FIRST CONTINUOUS COVERAGE THREE MODE COMMUNICATIONS RECEIVER & SCANNER

*Features*
- *25-550 MHz Continuous*
- *NBFM — For Communications*
- *WBFM — For BC8TV monitoring*
- *AM for Air Band*
- *20 CH Memory*
- *Clock-Priority CH*

# WE SERVICE WHAT WE SELL —

*In our fully equipped service department we cater for micro computers, amateur radio equipment, CBs (HF and UHF). Service contracts to trade also.*

*Car sound components, hand tools, altronic distributors, extensive range of second-hand radios, computers and test equipment.*

ARRS

# SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, it is that time of the year again as Christmas has come around once more. On reflecting over the spectrum during the past 12 months, I can state that it has been extremely frustrating, due to the poor propagation on the higher frequencies. The maximum usable frequency has been often very low, sometimes as low as 13MHz. The usually crowded 20 metre amateur allocation has been, at times, completely devoid of any signals, which is a little unusual.

On the other hand, the lower frequencies have been very good, especially the 49 and 60 metre broadcasting allocations. Although there were fewer Latins observed this winter, there were some interesting signals heard, nevertheless. The propagation paths appear to be north-south as plenty of signals coming from Asia are being easily heard. In fact, I have been surprised to hear Asians on 11 and 15MHz at fair to reasonable strengths during local daytime hours. This seems to emphasise the fact that propagation does indeed favour this path.

## NEW STATIONS

During this year, several new stations came on the air, such as Radio Marti. This station is within the VOA, although separate from it and broadcasts in Spanish to Cuba. It mainly uses a powerful MW sender in Marathon, Florida, but also the VOA transmitters at Greenville, North Carolina on HF are utilised. R Marti is easily heard here on 6.075MHz at 0930UTC. Then another station was launched later in the year called 'R Free Afghanistan'. It is primarily in the Dari language and uses the RFE/RL studios and facilities in Europe, with a 15 minute programme daily.

We saw some stations remove some of their long-running services. For instance, Radio Australia discontinued their special Antarctica programming on Fridays during October. Radio KGEI, in San Francisco, discontinued their Japanese programming from their schedule.

We also witnessed the unusual event of the BBC External Services going on strike in July for 24 hours, the first time in history. This was due to the banning of a television documentary on political extremism, which resulted in all radio and television networks being blacked out in protest. Our own Radio Australia also had some programme disruption caused by industrial disputes within the ABC.

Also on the 17th October, a radio station was put off the air as a result of terrorist action. The religious station 'Voice of Hope', which is precariously situated in 'no-man's land' on the Israeli-Lebanese border, was put off the air by a suicide mission. The 'Voice of Hope' broadcasts on MW and SW, and has been heard in Australia, but on the unusual frequency of 6.550MHz, in Arabic.

## EXPERIMENTAL TRANSMISSIONS

Over the next few month, several new stations are scheduled to commence broadcasting on shortwave. These are mainly within the continental United States of America, and are either commercial or religious in content. Radio KCBI in Dallas, Texas, has commenced an experimental transmission between 1700 and 2100UTC in the 25 metre band. Radio Earth International has been using their facilities for a three hour slot, on a weekly basis.

Radio NDXE, in Birmingham, Alabama, should be commencing soon. It will be commercial and reportedly transmit in AM stereo. I regard this information with a pinch of salt as AM stereo is questionable, both from the commercial and technical stand-points. There are no HF receivers with AM stereo capabilities, so presumably they haven't a large audience to make it feasible. Also the fickle nature of QSB on a normal AM (DSB) signal on HF would presumably render AM stereo useless. *And, what stereo format are they going to use?* There are three different systems, and the Khan system would be the most feasible, as the programme information is channelled into the lower and upper sidebands. Another hassle would be the congested bands and the amount of splatter from adjacent channels plus the "Woodpecker" pulses to contend with.

## OVER-THE-HORIZON

And while I am on about the Woodpecker, during October I did participate in a survey of the behaviour on-air of the Over-the-Horizon Radar (OTHR) pulses. I was allocated a frequency range of 17 to 20MHz, from 0900 to 1200UTC on a particular date. Unfortunately, I didn't hear one signal during my sweeps because the MUF was down around 13MHz during that time frame. So it was very frustrating to only tune around and continuously hear a hiss. 'Woody Woodpecker' was about though, but on the lower frequencies that were not on my brief. OTHR pulses were observed causing severe QRM to several broadcasters, including the BBC World Service, and these were also reported.

## EXPANDED OUTPUT

Some international broadcasters have recently expanded their output. For example, the VOA recently launched 'VOA- Europe' with a continuous English service. However, you will not find it on MW or SW, for it is a satellite feed for various European cable broadcasters. Also, Radio Finland commenced an experimental service in German, as well as Radio Moscow commenced in Scandinavian languages.

Reception of the BBC World Service has been difficult lately here, especially since Radio Moscow started to use their frequencies at the same time. For example, the frequency of 9.640MHz usually provides good signals from 0545 UTC to Australasia, but now a Soviet station is on that channel till 0600 UTC, drowning out London completely. Because of the indifferent propagation from the UK site, I have often relied on the BBC Mediterranean Relay from Cyprus on 9.580MHz. This is on about 0500 UTC, but is virtually unusable because Moscow is now co-channel with their 'World' service, and Scandinavian programming.

The Caribbean Relay on 9.510MHz is fair until 0645 when Algiers come up on 9.509MHz in French, leaving a nasty heterodyne on the channel. COupled with that, I am having difficulty hearing the BBC Far Eastern Relay from Singapore from 0900 UTC, on 11.750MHz, because Radio Beijing is 5kHz higher, broadcasting to Australia until 1025 UTC. Fortunately 15.070MHz is becoming reliable again, but at variable levels.

The experimental transmission from the BBC Eastern Relay, to this area at 0600 UTC on 21.550MHz, has not been observed very often. This is because of poor propagation from Masirah Island. Also, the usually powerful Irkutsk sender, carrying Radio Moscow's World Service, on 21.530MHz, is well down. I rarely have heard many JAs either on the 15 metre amateur band. It is interesting to note that no broadcasters are now using the 11 metre allocation. I guess that they are waiting for the minima to pass before they operate there once more.

## YULETIDE MESSAGES

Around the Christmas period, many stations schedule special programming in keeping the Yuletide spirit. As I am writing this in mid-October, I have not received any advance information, so I am unable to give any details. I can say that the BBC World Service is likely to have the annual "Festival of Nine Lessons" from King's College, Cambridge, at approximately 0935 UTC, after The Queen's Christmas Message. It will be on the usual World Service frequencies.

The Vatican Radio will broadcast Midnight Mass on Christmas Eve at 2230 UTC, from Saint Peter's Basilica. No frequency details are at hand, but my recommendation is the 25 metre band, where it will probably be heard in Australia.

Well, it only leaves me to wish you, and your families, all the best for Christmas, and hope that 1986 will be happier than this year has been. All the best of listening, and best 73 — Robin VK7RH. AR

# TECHNICAL REVIEW
## Amateur Packet Radio

An article entitled "Packet Radio in the Amateur Service", has appeared in the journal of the Institute of Electrical and Electronics Engineers. The IEEE is an American society with membership drawn from the ranks of people involved in the various electrical, electronic, communications, and computing professions. Its members reside not only in America, but around the world, wherever there is serious interest in things 'electrical'.

It is a tribute to the authors, Philip Karn KA9Q, Harold Price NK6K, and Robert Diersing N5AHD, that such an article on 'amateur' activities has been accepted for publication in such a 'professional' journal.

The article briefly describes the hardware used — both the VADCG and TAPR Terminal Node Controllers — and then goes on to discuss the development of appropriate software for the amateur radio environment. This is followed by some comments on modems and modulation methods.

Following brief comments on various experiments and examples, there is a section on the use of satellites for packet radio. This section includes comments on OSCARs 9, 10, and 11, PACSAT, and JAS-1, and finally a brief comment on Phase 3-C.

The article is illustrated by a series of well prepared diagrams and appeared in the May 1985 copy of the IEEE Journal on Selected Areas in Communications, VOl SAC-3, No 3, pp 431-439. Many libraries carry the IEEE Journals and copies should be obtained through any library.

This article was brought to our attention by Peter O'Connor VK4KIP, who is a member of the IEEE.

Condensed by Peter Gamble VK3YRP AR


## VERSATILE NINE-IN-ONE HF ANTENNA KIT

An easily portable multi purpose antenna kit from Britian contains all the components that are necessary to permit any of nine different antennas, covering HF bands, to be erected by one man in as little as ten minutes.

The multi-purpose tactical antenna kit covers the frequency range, 1.6-30MHz, and is said to be far more versatile than other antenna kits of similar design. Components can be selected to provide omni-directional or directional characteristics for short, medium or long range communications and everything is contained in a small canvas bag.

By using trees or available buildings, dipole, delta, base-fed vee, inverted 'L' or sloping vee configurations can be rigged and the dipole arrangement can be made directional by using one element as a reflector.

Transmitter power of up to 500W can be used.

From Information Technology from Britian, 19th August 1985.

## NEW LOOK! !

A5 ATV Magazine has changed both its format and its name. The new SPEC-COM JOURNAL features a larger page size, and an expanded focus on all forms of specialised amateur communications.

Complete details of this new magazine may be attained by writing to *Spec-Com Specialized Communications Journal, PO Box H, Lowden, IA. 52255.*

*From 73 for Radio Amateurs — August 1985.* AR

# LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

It's me again, and of course I have missed several deadlines. I will start my column this time with a riddle.

He's at a location, which has 14km of sea-front on about 4000 hectares of land near Victor Harbour and Cape Jervis, overlooking Kangaroo Island. I was speaking to him on 80 metres in mid-September and he spoke of hordes of tourists from Adelaide, anxious to get away from "The Big Smoke", who do not realise the folly of dropping a used cigarette butt in the tinder-dry bushland. *Who is he?* Non other than Pat VK5PAT. Pat had taken time off from milking 250 cows, and building a fowl pen to speak with me.

## MAN-MADE BEACH

I told Pat that I was an ex-Sydneyite, and I haven't seen a wide stretch of ocean for more than a quarter of a century. Pat replied that he could not stand to live too far away from the ocean, and the wide-open spaces. (For those who may not know, Buronga, where I live, is very much inland, and the next best thing to a beach around here is a man-made strip of sand by the Murray River). So, I envy Pat his nearness to the sea, especially on the blistering hot summer days when the temperature can hover around 44 degrees Celsius.

## BUSHFIRE SEASON

Much of our talk concerned the lush undergrowth, which is now so evident, both here and at Pat's QTH, and of the coming bushfire season.

Buronga is not really prone to bushfires, the last fires being about a decade ago when almost the whole of the far western region of New South Wales was on fire. The fires at that time were so bad, fire engines from Sydney and suburbs were sent to this area to assist the local brigades, a distance of the best part of 700 miles (1126km). Many of the fires were thought to be deliberately lit, and at one point of time, there were as many as 17 fires raging on both sides of the Murray. Spotter aircraft and Army helicopters were also used in the battle.

Some valuable lessons were learned at the time. It was found that radio equipment aboard some of the vehicles could not operate on common frequencies. (I was not an amateur at the time, so could offer no assistance of worth, and only observe). It was the most devastating sight to behold to see kilometre upon kilometre of burnt country-side when the fires were finally extinguished. Many fires are caused by the careless, thoughtless act of dropping a cigarette butt on a day when the undergrowth is tinder-dry, and the winds and temperature are just right for a major conflagration.

## LISTENING AROUND

Recently, on 80 metres, someone remarked that this column was one of the first things they read in AR, and asked why it wasn't in September's magazine. I had to explain that I had missed the deadline, and that it was about time I got in from of my typewriter again. Gordon VK5HM, who is fond of correcting me, informed me that I should have said *"when I get the typewriter in front of me"* not *"when I get in front of the typewriter"*. Pardon me Gordon, but you must be right, as usual. Gordon is always jibing me about my New South Welsh accent, and pronounciation.

Over the past few weeks, nightly conditions on 80 metres have been atrocious, to say the least. There have been times when I could hear Des VK3BSB in Gippsland, whilst Alan VK3BRG in Shepparton could not hear him or vice-versa. Also, communication between VKs 5HM, KV, GJ and myself, normally regarded as a short distance haul, was impossible. Yet, Paul VK2VJR, in Armidale NSW, could hear all three. Another time, a Hobart station that I could copy very well informed me that whilst he could speak with me, he could not communicate with any other VK7 stations. Odd conditions, indeed.

Matters have not been improved at all by CW interference of plague proportions, however, we will leave that matter to another place, and time! !

## NO PHONES (Tele-type)

Gordon VK5HM, is a person who does not like telephones — he say he has never had one, and never will. Therefore, in the early hours of the morning, when Tom VK6TR was mobile on a highway between Mount Barker and Albany, and called for assistance, Gordon could not help. It was then left to me to ring Tom's wife in Albany and ask her to venture out to pick Tom up as his vehicle had broken down. Within 45 minutes she was at his side, and they were both very grateful. The sequel to the story was, Tom had only installed the radio in the car a few hours prior to departure and had not tested it on-air. Tom is an engineer at a television station at Mount Barker and was on his way home after working his shift.

## AND AMATEUR RADIO DOES IT AGAIN!

Several weeks ago, I just happened to switch on when I heard Walter, in Parkes, NSW, calling me. It was pure chance that we happened across each other at that time, but we have spoken many times before and he knows my usual haunts on 80 metres.

Walter wanted me to try to catch up with a mini-bus, which had just passed through Mildura but, as they were not equipped with amateur radio, I could not see how I could help. It appeared that a person on the bus needed to be contacted by relatives in Hoxton Park, near Sydney, about a death in the family.

However, Walter thought I may be able to pass a message into South Australia, where the bus was destined for, in the hope that someone may spot it. I felt the chances of this happening were very remote, so I would instead ring the Mildura police. Upon ringing them I was told that the bus had been located in Berri and the message had been passed on via police channels. I was then able to call Walter back and he passed the message back to Hoxton Park that the relative was now informed. Meanwhile, an amateur in Adelaide who had intercepted the initial call from Walter and had duly notified the Adelaide police. Oh well! It doesn't matter if we double up on these things, just as long as the message gets through.

The telephone is often an invaluable asset in conjunction with amateur radio. On Friday 13th September, about 1710 UTC, I made a casual contact with Neville VK5NNH. Neville and his XYL Norma, were operating portable from between Cobar and Wilcannia, en route from Queensland to South Australia.

Neville told me that during their trip they had maintained regular scheds with another amateur, 74 years old Eddie, at Gonns Crossing on the Murray River. As it was some time since they had heard from him they were concerned of his welfare. After Neville locating Eddie's telephone number, I was able to ring Eddie and had him come up on air to talk to Neville. How pleased they both were, and I was pleased that I had the facilities to help. Eddie had been working on a 1906 chaff-cutter that his son had brought around for him to fix, and not only did Eddie manage to fix it, he also found a 1906 engine to power it! !

A person I often speak with is Ken VK3DSK, of Geelong. Ken is troubled with atmospherics and arthritis, neither of them are very welcome.

One morning, I was talking my head off, when right in mid-sentence, the lights flared very brightly, dimmed, flared again and then they were gone completely. I was in complete darkness, and, of course, off-the-air.

Pandemonium! No torch, and where was the candle which was last used about six months ago? I did find a box of matches, but where was the phone book so I could ring the electricity authority at 2am on a very wet, and wintry morning. I couldn't find the phone book, even after finding a glimmer of light with a stump of candle. I knew I should have written a number like that on the wall near the phone for emergencies.

I sat and listened to a portable, battery radio for about two hours in the hope of the lights returning, but it wasn't to be and about I retired after turning on the mains operated radio so that it would wake me as soon as the power was back on. This it duly did at 5am. I never did find out why Mildura still had power and Buronga was in darkness, as we get our power from VK3.

In the morning, I received a phone call from Ken in Geelong. It seems that Gordon VK5HM was concerned about my sudden departure from the air, and was worried I may have had a 'bad turn', or worse. Thanks Ken, for ringing and caring. We radio amateurs certainly take care of each other, don't we?

As I have just made the deadline for the December issue of Amateur Radio, I would like to wish all my readers and friends a very Happy Christmas, and may 1986 be a very happy, and productful year.

Cheers for now, and 73 until next time . . . Joe VK2BJX.

AR

**Due to the fluctuating A$, an incorrect price was included in the GFS Electronic Imports advertisement in November magazine.**

# Radio Amateur Old Timers Club


Can any Old Timer identify the missing name and call signs in the accompanying photograph? The photograph was supplied by Ray Carter VK2HC. As far as can be ascertained they are, from left — Matt O'Brien VK4MM, — Norville, Trevor Evans VK2NS, Howard Love VK3BM, Ray Carter VK2HC, Alderman J Jackson Lord Mayor of Sydney, Phil Renshaw VK2DE, Ernest Fisk, Leo Feenaghty, Arthur Walz VK4AW, D G Lindsay VK2DY, Bruce Hardie Federal Secretary of the WIA, and Oswald Mingay.

The photograph was taken by a Sydney Morning Herald photographer, on the balcony above the entrance to the Sydney Town Hall, circa 1931. The occasion was the WIA Federal Convention, held in New South Wales.

## LETTER FROM FATHER CHRISTMAS TO HIS BANKER

I'm sending this letter to tell you
That credit restrictions today,
Have robbed me of all my equipment
My workshops, my reindeer, my sleigh.

I'm making my rounds on a donkey,
He's old, and decrepit and slow,
So you'll know, if I miss you this Christmas
I'll be out on my mule in the snow.

## REPLY FROM HIS BANKER TO FATHER CHRISTMAS

Your message has caused us much sorrow,
A sorrow we can't drown in beer,
But wait till we really get going
On credit restrictions next year.

You're lucky to still have a donkey,
On which to proceed on your round.
If things don't improve by next Christmas,
Your mule will be flat to the ground!

## DO YOU REMEMBER?

Latest Dance Hit! Roll up the Rugs! Sway to the pulsating lilt of your favourite Metropolitan Orchestra.

Dance in unison with ten thousand other gliding couples. Tap the limitless ether for the rhythmic harmony that awaits your 'tuning in'.

***Cunningham Radio Tubes*** give that bell-like clearness, that perfect re-creation of tone which you must have for the utmost in radio enjoyment.

***Since 1915 — Standard for all sets.*** Types C301A, C300, C11, C12 in the Orange and Blue Cartons.

This, and similar advertisements, told the reader of Hugo Gernsback's magazine, RADIO NEWS in 1925, how magnificent was the sound reproduction of wireless. We even thought so ourselves, 60 years ago!

## LOSS OF ASSISTANT SECRETARY

It is with sadness we record the passing, on 6th October, of the RAOTC Assistant Secretary, Clem Day VK3GY.

Clem was a lovable character who carried out a tremendous amount of work for the Club behind the scene in conjunction with the Secretary, Harry VK3HC. Never wanting the limelight, but getting on with the job was his philosophy, and this he did in fine style up to the end, despite having lost his very beloved wife a few months ago, and himself under treatment for a serious illness which was to claim him.

Heartfelt sympathies are extended to his family and friends. His work experience will be difficult to replace. His amiable nature will always be remembered.

## SILENT KEYS

We regret the passing of the following RAOTC Members since March 1985.

Bill Bullivant VK2BC; Ronald Ride VK2BQF; Jim Blackwood VK3ABL; Norman Chapman VK3ANC; Cliff Pickering VK3ATP; Arthur Wilson VK3DGA; George Turner VK3GN; Clem Day VK3GY; Denys Ayre VK3KP; Frank Nolan VK4FN; Ted Hudson VK4MH; J P Rosewarne VK5MN; and Harry Simmons VK6KX.

If readers are aware of the passing of a member who is not included in these notes, please notify the Secretary, Harry Clift VK3HC, in order that condolences can be sent, and records kept up to date.

## VICTORIAN ANNUAL RAOTC LUNCHEON

The Annual Luncheon of the RAOTC in Victoria was held at the City and Overseas Club, on the 25th September. It was a most enjoyable function with 60 members present, gossiping about the early days. Many apologies, for non-attendance, were received.

When members sat down to lunch, they found a *Who am I?* sheet in front of them describing part of the life of one of our Club members and inviting them to read the document and name the person concerned. When collected and vetted, 17 members had judged correctly, so a winner was 'drawn from a hat'. Bob Cunningham VK3ML, was the mystery man and Ed Manifold VK3EM, was the lucky winner who received the President's prize of an air-wound inductor.

Amongst the answers were — *'It might have been me'; 'Fred Nerk'; 'Is it, I don't know'; and 'Search Me'* — which added some merriment to the occasion.

The highlight of the luncheon was an audio-visual display, presented by Chris Long, a former Acting Curator of Electronics at the Melbourne Museum, and well-known researcher into early wireless, sound recording, and amateur radio.

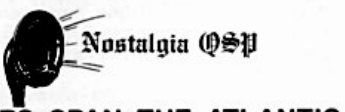
The display of sounds and stills intrigued everyone, commencing with the story of George Selby's very early experiments in the 1890s with Morse code spark transmissions, and paper tape recordings of these signals carried out between South Yarra and Brighton, in Victoria. The clockwork paper tape printers and coherer detectors were viewed and described. Crystal detectors and the use of headphones early in the 20th century led to recording fast Morse on wax cylinders.

A broadcast by King George V was recorded and transmitted on the BBC's first station in England in 1924, and a copy of this was included in the presentation.

The luncheon programme by Chris Long also included pieces from the early days of radio broadcasting and recording in Australia, the advent of 'electric recording', talking pictures, amateur transmitters on the broadcast band, and much more.

A hearty vote of thanks was extended to Chris for his valuable and highly interesting presentation. A lengthy discussion and question time finally concluded another very successful Old Timers Luncheon.

**AR**




## AMATEURS SPAN THE ATLANTIC ON 10 METRES

Plunging ahead with an increasing amount of enthusiasm in the exploration of the unknown radio territory in the vicinity of 10 metres, amateur radio operators have already accomplished trans-Atlantic communication on this wave-length.

With the opening of this territory, dozens of amateurs hastened to construct transmitters and receivers to operate at this extremely low wave, with encouraging results.

The first actual trans-Atlantic two-way communication on 10 metres was affected between C K Atwater NU2JN, in New Jersey, USA, and Pierre Auschitzky EF8CT, France. These stations engaged in conversation for nearly half-an-hour with good signal reports, both ways. Neither station was using high power.

*The above report has been condensed from Ham Notes, Radio, 16th July 1928, and was contributed by Peter Alexander VK2PA.*

## OLD TIMER IN 1928

Mr Crocker 2BB is one of the oldest transmitters in Australia. He first got a licence in 1911, when experimental listening-in tickets were issued, but were cancelled when war broke out. When peace was signed he took out an amateur experimental transmitting licence. At that time there were only a handful of others operating, amongst them 2CM, 2JR, 3BQ, who were the most enterprising.

In the old 240-metre days, when there was not any broadcasting stations on air, 2BB, with 2CM, transmitted some great Sunday night concerts, and 2BB claimed to be the first amateur to put phone signals across to New Zealand.

Condensed from Ham Notes, Radio 16th July 1928, and contributed by Peter Alexander VK2PA

# ALARA

Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER FOR ALARA
PO Box 22, Yeoval, Vic. 2868

**Kay GM6KAY.**

**Akiyo JH1GMZ and Fumio JA1BAR.**

Well, our birthday year has been a memorable one, with more YL activity than ever, and get-togethers, parties, and luncheons to celebrate. It has been a good opportunity for ALARA members, OMs, and families to get to know each other personally, and put a face to the voice!

One thing that distinguishes those involved with amateur radio is that they have no difficulty finding a topic of conversation. None of those 'awkward' pauses on meeting for the first time. After all, we already know each other, don't we!

It is good to see so many really keen YLs. One (who shall remain nameless), having shifted to another location, was so anxious to get back on-air that, with the OMs help, the 80 metre aerial was strung from the highest available point — in this case the mast of a boat moored on the back of a trailer in the driveway. It did the trick until something more permanent could be arranged.

**Mary KB6CLL.**

## ALARA CONTEST

Our thanks to all who were active in the ALARA contest, especially the OMs who joined in. Without participation, of course, there is no contest, and the ALARA Contest is noted for its friendliness.

Logs should be sent to Marlene VK2KFQ, 31 Cadell Street, Wentworth, NSW. 2648, prior to the ***31st December 1985.*** Novice YLs — please mark in ***RED or otherwise indicate*** your CW score for the Mrs McKenzie CW Trophy Award.

## WEEKLY NET

Don't forget the official Monday night net, which is held at 1000UTC during daylight saving. The frequency is 3.580MHz +/- QRM.

There will be no monthly general meeting in December. So many other activities claim our attention at this time of the year that it was unanimously decided it should be cancelled.

## ALARA AWARD

A slight alteration has been made to the ALARA Award Rules. They should now read:

*VK/ZL — 10 members to be contacted and to include five Australian call areas*

*DX — Five members to be contacted and to include four Australian call areas*

## SUBSCRIPTIONS DUE

It is that time of the year again, and subs are now due. This year it is $6 for VK members; $6 for DX sponsorships with the newsletter going airmail and $4 for it to go surface mail.

Whilst on the subject of sponsorships — sponsoring an overseas YL is a wonderful way to make new friends. If you don't know anyone yourself, please write to the Sponsorship Secretary, Jessie Buchanan VK3VAN, 4 Milford Crescent, Karingal, Vic. 3199. Jessie will be able to assist you. Frequently sponsorships are reciprocal.

## NEW MEMBERS

Welcome to new members — Betty VK4BET, who joined on 24th September, and Muriel VE7LQH, who joined on 10th October. Muriel was sponsored by Helene VK7HD.

From lusty infancy in 1975, ALARA has grown to be quite a big girl by her tenth birthday. May 1986 see even better things.

A very Happy Christmas to one, and all.

33/73, Joy VK2EBX
**AR**

# QSP

## WARNING ON ELECTRICAL SAFETY

An average of 80 Australians die each year in electrical accidents — many of them occurring in the home.

The Australian Consumers' Association (ACA) said the growing use of hair dryers, do-it-yourself power tools and power boards containing extra electrical sockets, was creating new hazards.

In a special guide on living safely with electricity, in its journal 'CHOICE', the ACA said extension leads and other lead accessories were the biggest killer group, accounting for nearly one third of the deaths.

A number of people, most of them young, had been killed when hair dryers fell into baths.

## RESTRAINTS REMOVED ON 24 HOUR BROADCASTING

Television and radio stations can now broadcast 24 hours a day without the need to seek specific permission from the Australian Broadcasting Tribunal.

Under amendments to the ABT policy statement on "Hours of Service" a licensee may transmit programmes at any time. However, if there was a reduction of more than 25 percent in its average weekly hours of service, the licensee is required to explain the reduction.

# AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

Here we are at the close of 1985, and we can now look forward to 1986, hopefully a very good year for everyone.

I would like to extend, to all amateurs and SWLs, the very best for the Festive Season, and a special thank you to those clubs, and individual amateurs who have provided me with copies of their awards throughout the year. Good hunting in 1986.

Are Australian awards easy, or hard to obtain? There has been a lot of on air discussions about poor propagation, etc, but Ivan ZL1AQO, has collected 77 Australian Awards, all on 80 metres. Congratulations Ivan.

## P S CUMBEROONA AWARD

At the turn of the century, there were over 300 paddle steamers, and steam boats operating on the Murray, and Darling River systems. Presently, only a few are operating, and provide an opportunity for tourists to travel the River Murray.

A new paddle steamer has been designed, and is being built at Albury by Warwick Hood. This will be the first designed and built since the decline at the beginning of the century.

To commemorate the launching of this vessel, the Twin Cities Radio and Electronic Club are sponsoring an award, to be called the P S CUMBEROONA Award.

Award requirements are: *All HF bands, except 160 metres, for a 24 hour period only. One contact to be made with VK2EWC — SWLs to log the information of the station working VK2EWC.*

Log extract to be forwarded, together with $2 to: *The Awards Manager, PO Box 396, Albury, NSW. 2640.*

Unfortunately, the format and printing of the award, nor the date have yet been finalised, however it is anticipated to be sometime in later this month.

Arrangements will be made by the Club to inform amateurs and SWLs of the date, per medium of WIA Sunday Morning Broadcasts.

## INTRUDER WATCH CERTIFICATE

Over the years, many dedicated amateurs, and SWLs, have devoted many hours logging intruders in our bands. Now their efforts may be rewarded with the issuance of an award, in the form of a MERIT CERTIFICATE, as some recognition of the work they have performed on your behalf. I hope that this may encourage many others to take part in intruder watching.

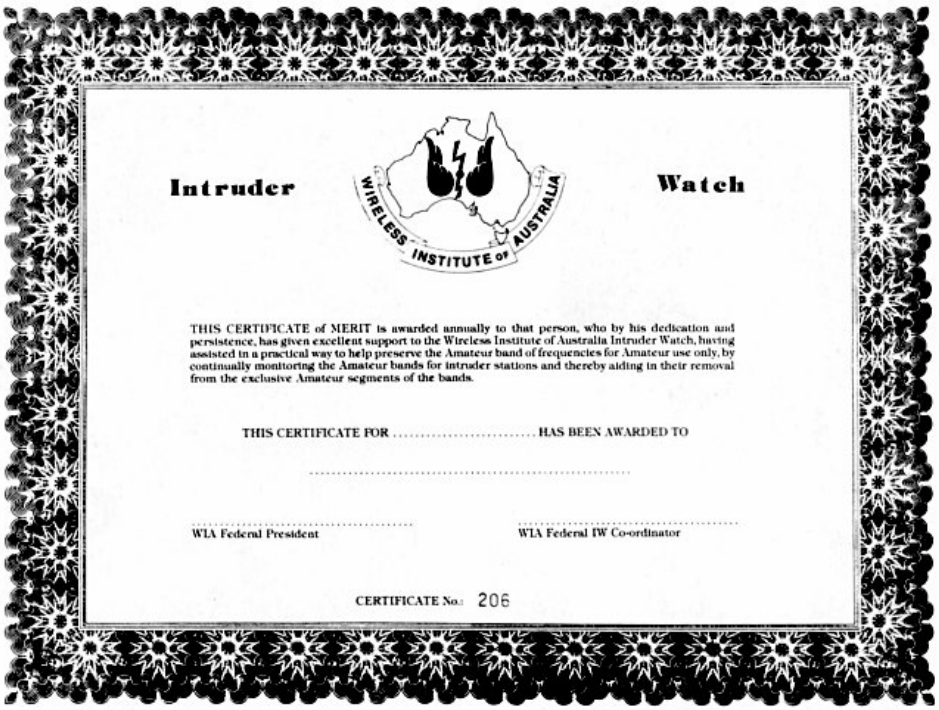
The Certificate measures 335 x 255mm, with the WIA logo in red and blue, a blue border and black printing, on good quality white paper.

The Certificate marks the acknowledgement of the WIA on a Federal level, to the good work done by individual amateurs, and SWLs, to further the cause of the Intruder Watch, ie *to endeavour to monitor, and cause removal, of offending Government, Military, and Commercial radio stations who continue to offend by transmitting their signals on radio frequencies where the amateur service has been allocated primary, or exclusive rights.*

The Certificate is allocated on a once only basis, and any individual amateur, or SWL can only qualify once. It will be awarded annually to the individual amateur or SWL in each Division, who has demonstrated outstanding support to the Intruder Watch, with consistency being more of a criterion, than quality.

It will be signed by the Federal President of the WIA, and co-signed by the Federal Intruder Watch Co-Ordinator of the time. Certificates will be consecutively numbered.

Help preserve your bands by submitting reports to your Divisional Intruder Watch officers, or to the Federal Co-Ordinator. Listen around the bands, and as there is mainly poor propagation, there seems to be many more intruders. If they are not removed, imagine the effect when we once again have good conditions.




## ALARA AWARD (revised)

Rules for the ALARA Award have been revised. Following are the new rules.

The Award is available to all amateurs and SWLs (YLs and OM).

Australian and New Zealand amateurs are required to contact 10 ALARA members, and to include five Australian call areas.

Overseas amateurs require contact with five members, and include four Australian call areas.

All contacts must be made with members on or after 30th June 1975, and no repeater contacts will be accepted.

Applicants must submit a complete extract of log entries, which is to be verified and signed by two other amateurs. In the event of an applicant in an isolated location being unable to obtain verification, QSL cards should be forwarded in lieu.

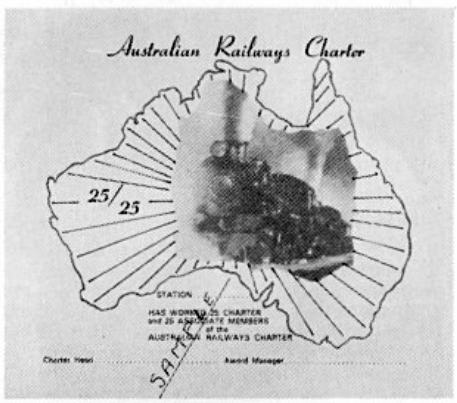
The log should show Date/Time UTC; Band; Mode; Call Sign of ALARA Member Contacted; Report Sent; Report Received; Name, and must include applicants Full Name, Address, Signature, and Call Sign.

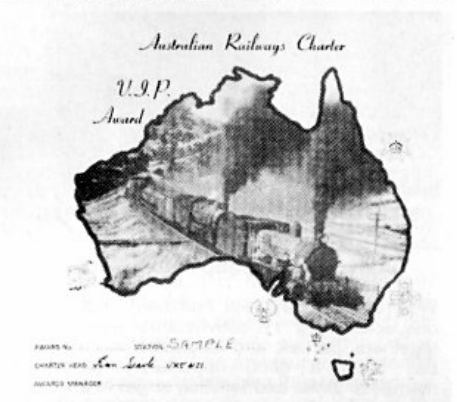
All contacts must be made from the same call area.

Official ALARA Net contacts do not qualify.

Special endorsements are available for Mixed, All CW, All Phone, All 28MHz, etc. Endorsement stickers are available for each 10 additional members contacted for VK and ZL stations. DX stations require five additional member contacts.

Applications should be forwarded to: *ALARA Awards Custodian, Mavis Stafford VK3KS, 16 Byron Street, Box Hill South, Vic. 3128, and accompanied by A$3, 7 IRCs, or equivalent for initial award, and A$1 for additional stickers. (No fee for stickers awarded with the original issue of the Certificate, only additional stickers applied for later).*




## AUSTRALIAN RAILWAYS CHARTER

The Australian Railways Charter offer amateurs, and SWLs, a number of very attractive awards. So far, 63 Charter Certificates, and 142 Associate Certificates have been issued. Surplus moneys from the issue of these certificates have enabled the Charter to donate $300 to the National Heart Foundation.

A group of railway employees, all radio amateurs, of the railways of Australia, and retired employees, joined together to form the Australian Railways Charter on 9th March 1980. There are four certificates available which any amateur or SWL may apply for. These can be obtained by working Charter members, or award holders, on any band or mode. These contacts may be hard to


obtain due to the varying shifts worked by railway employees.

For membership of the Charter, members must be present or retired railway employees, and need only to apply to the Awards Manager, giving details of employment. Honorary membership is extended to retired, or serving members of overseas railways. Membership is the issue of the BASIC AWARD from which the Charter number is obtained.

Associate members are non railway employees who qualify, and apply for the certificates.

**BASIC AWARD**
Six contacts comprising three Charters in three different states, plus three other award holders. DX stations require three contacts, comprising one Charter, plus two other contacts.

**WHISTLE STOP AWARD**
Basic Certificate must be held, plus 50 points.

**VIP AWARD**
Requires 200 points.

**25/25 AWARD**
Work 25 Charters and 25 Associate Certificate holders.

**GOLDEN SPIKE AWARD**
To obtain this award the operator must hold the VIP Certificate, and must contact 10 members on one band or mode; ie 10 metres or 15 metres, or CW, etc, or make contact with five overseas members on one mode. These stickers may be placed on the VIP Certificate. There is no charge for these Spikes, but a SASE is a must.

Golden Spike is available for Net attendance. These are for every 25 nets attended.

Logs must show Certificate number, points, station, name, location, date, and frequency.

Fees - All Certificates $3 (DX add 2 IRCs), except 25/25 which is $2 (DX add 2 IRCs).

Points value — Charter . . . five points (or one contact towards Basic). Associate . . . two points. Whistle Stop . . . two points. VIP . . . to points. 25/25 . . . one point.

The Australian Railways Charter holds a weekly net every Sunday at 1030UTC, on 3.608MHz +/- QRM.

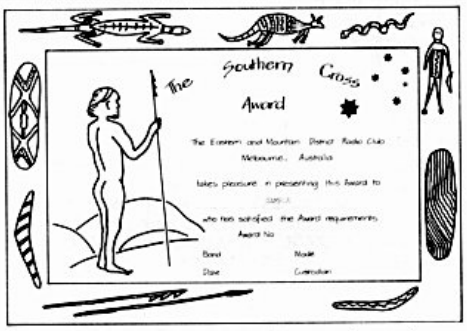
Inquiries and award applications to: *Harry Frundt VK5NHF, Box 87, Tailem Bend, SA. 5260.*

## SOUTHERN CROSS AWARD

The new version of this Award, issued by the Eastern and Mountain District Radio Club, is available to licensed amateurs, and SWLs, who obtain the required number of points. Applicants must hear or work Club members. Contacts on or after 1st September 1985 are valid.

VK stations require a total of 10 points.

DX stations, including VK9 and 0, require five points.




Each Club member is worth one point, and **one only** of the Club call signs is worth two points, with the other Club call signs worth one point each, if included in the same application.

A member can only be claimed once per application regardless of upgrading their call sign. The only exception is the person operating the Club call sign, who can be claimed under that call, as well as under their own personal call sign.

Cross mode and cross band operation can be claimed, but not repeater contacts.

A list of current members call signs will be forwarded to anyone requesting same, upon receipt of a SASE (foolscap size) for VK stations or 2 IRCs from DX stations for airmail return.

QSL cards are not required, but an applicant must submit log extracts, certified correct and signed by two licensed amateurs. Full name, address, call sign, and signature of the applicant are required, together with the necessary fee, which is A$2 (or equivalent), or 5 IRCs. DX stations to add 2 extra IRCs if return by airmail is desired.

All correspondence to: *The Awards Manager, EMDRC, PO Box 87, Mitcham, Vic. 3132.*

Club Nets are held Wednesdays on 3.572MHz +/-, at 1000 UTC, and Sundays on 28.475MHz +/- at 1130 UTC.

## LABRE AWARDS

The Liga de Amadores Brasileiros de Radio Emissao — LABRE, to encourage interest in the Brazilian, American, and Atlantic Ocean areas, and DX on the lower bands, sponsors the following awards for radio amateurs. *WAB (Worked All Brazil), WAA (Worked All America), WAO (Worked All Oceans), and the DBDX (Diploma Brasileiro de DX — Brazilian DX Award).*

**THE WAB AWARD** is available to amateurs that confirm contacts with Brazilian stations in all 23 States, and the City Capital — Brasilia (PT2). A special ribbon (TBT) will be attached to the award to confirm contacts with the two Brazilian Federal Territories (Amapa and Roraima).

**THE WAO AWARD** is available to amateurs that confirm contacts with all nine Brazilian Geographic Regions (First Region — PY1-PP1; Second Region — PY2-PP2-PT2; Third region — PY3; Fourth Region — PY4; Fifth Region — PY5-PP5; Sixth Region — PY6-PP6; Seventh Region — PY7, PP7, PR7, PS7, PT7; Eighth Region — PY8, PP8, PR8, PS8, PT8, PU8, PV8, PW8; Ninth Region — PY0, PT9, PY9), and 21 countries of the Atlantic Ocean.

**THE WAA AWARD** is available for confirmation of contacts with 45 countries in the American Geographic Area. One of them must be with Brazil.

**THE DBDX AWARD** is available for confirmed contacts with a minimum of 20 different countries, as shown in the official DXCC list. One of the countries must be Brazil. Special stickers are available for additional countries in groups of 10, to be attached to the Award. All contacts must be in the 160, 80 and 40 metre bands only. There are three different kinds of Certificates for this award. One for Phone/CW, one for Phone Only and one for CW only. All awards issued will be kept on an Honour Roll and are numbered sequentially.

All applicants must be licensed amateurs, operating in authorised amateur bands.

All contacts must be from the same location except when a station moves from one call area to another, then all contacts must be made from within a radius of 150 miles (241km) from the initial location.

All contacts must be with land-based stations. Contacts with ships, anchored or otherwise, and aircraft are not allowed.

Contacts over a period of years are valid providing they have been made under the provisions of the current rules and with the same station license.

All confirmations must be submitted exactly as have been received from the worked station. The log must be verified by the Awards Manager of the applicant's country. Where there are no managers available, the log may be checked and signed by two licenced amateurs.

Compliance with international conventions, national laws, and the rules in force, fair play and good sportsmanship in operating are required by all operators applying for these Awards.

All applications must be sent to LABRE Headquarters, Awards Manager, PO Box 07-0004, 70000 — Brasilia, DF, Brazil, enclosing 10 IRCs for handling cost.

The decision of the Awards Division of LABRE shall be final.

## FEDERACHI AWARDS

The "Federacion de Clubes de Radioaficionados de Chile" has three awards available for amateurs.

Send a GCR list showing Station, Date, Time, Band, and Mode certified by any official radio club in the applicants country. Similar rules apply for SWLs on a heard basis.

Cost is 10 IRCs for postage.

All correspondence to *The Awards Manager, FEDERACHI, PO Box 2545, Concepcion, Chile.*

**ABCE AWARD (All Band CE Award) —** Proved communications with at least one CE station in each of the 80, 40, 20, 15, and 10 metre bands.

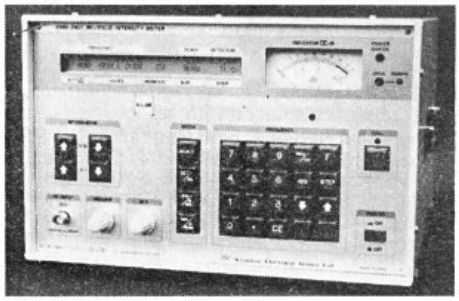
**CE AWARD —** Confirmed communications with 100 CE stations in the same mode.

The third award is for six metre operation which is not applicable for Australia. **AR**

## SPECIAL EVENT

On 1st December 1985, the Ninth Annual Pasadena Parade will be operational. They will be operational from 2000 to 2200UTC on the lower 15kHz of the 20 metre band. QSL to WA6MUK, 932 N Lake Avenue, Pasadena, California, USA. SWLs are also welcome to send a listening card.

# AR SHOWCASE



## INTENSITY EQUIPMENT

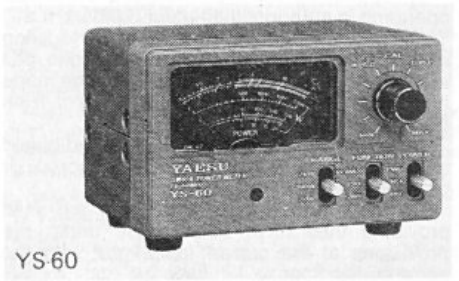
The Vicom Group has announced it now represents Kyoritsu of Japan with their range of specialised EMI and Field Intensity equipment.

Kyoritsu was established in 1948, and is a respected leader in the industry with products including RFI Field Intensity meters to 1.5GHz, EMI meters to 1GHz, Disturbance Analysers, plus a range of broadband and tuned dipole antennas.

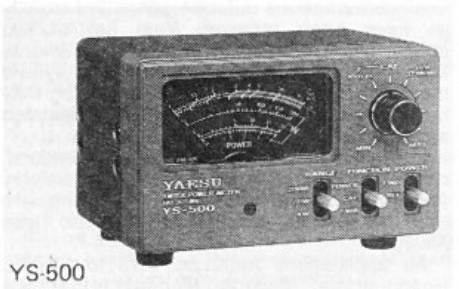
They also have considerable expertise in shielded room design and manufacture a number of sizes.

Full details of the Kyoritsu range of products may be obtained from the Vicom Group Offices in Melbourne, Sydney, Brisbane, and Wellington, or telephone (03) 62 6931.

AR



YS-60



YS-500

## IN-LINE SWR/POWER METERS

The new Yaesu YS-60 and YS-500 are handsome, compact, multi-function instruments for monitoring both average and peak transmitter power output and reflected power, and voltage standing wave ratio (VSWR) of antenna systems in two-way radio stations from 1.6 to 60MHz (YS-60), or 140 to 525MHz (YS-500).

The small size and colour co-ordinated cabinets make these units ideal additions to any Yaesu transceiver. Three functions provide monitoring of either forward or reflected average transmitter output power for CW, AM, FM, and FSK modes, or peak envelope power (PEP) for SSB modes, and VSWR for testing and monitoring the performance of transmitting antenna systems.

The efficient, linear circuit design assures accurate measurements with minimum insertion loss over the entire specified frequency range, even at low power levels.

For more information contact Bail Electronic Services, 38 Faithful Street, Wangaratta, Vic. 3677.

AR

## STEREO SYNTHESISER

A stereo synthesiser, the MFJ-1501, designed to provide high quality synthesised stereo from a television or video recorder, is now available in Australia.


The unit simply connects between the audio output of a VCR or across a television speaker and the AUX input of a stereo system. The technique used to derive the stereo is similar to that used by most TV stations when operating from a mono source. It is also the same as record manufacturers use when they produce a stereo record from an old mono recording.

The effectiveness is so good that a sense of spaciousness is conveyed, which puts the viewer right into the middle of the movie scene without having to outlay the many hundreds of dollars required for a new stereo television or video.

The MFJ-1501 is equipped with two mono inputs which are switchable, and allow for other sources to be used, such as a portable electronic organ or AM radio. Operation is from 240V AC or 12V DC for portable/mobile operation.

The unit is finished in egg shell white with walnut grain sides, and measures 126 x 50 x 152mm. Price at $305 including postage within Australia, the MFJ-1501 is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR


## LARGE THEATRE SOUND AT HOME

GFS Electronic Imports have announced the availability of a unique 'add-on' device which provides the illusion of large theatre sound to a video recorder, television, or Hi-Fi system in the home.

The MFJ-1500 provides this sound by electronically processing the source signal, including the introduction of variable time delay and reverberation, the characteristics of a large listening environment.

The unit accepts a mono or stereo input and produces single processed, as well as unprocessed outputs, both of which can be fed into the two channels of a stereo amplifier.

For users who do not have a stereo system the MFJ-1500 has its own built-in two watt amplifier. A single speaker is connected to the MFJ-1500 speaker terminals, and placed behind the viewing position. This speaker, in conjunction with the TV's speaker then provides viewers with the illusionment of big theatre sound.

A special price of $250 plus $14 p&p is applicable if this article is mentioned.

Contact GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR

## RF VIDEO MODULATOR

A new RF Video Modulator, the MFJ-1431A, converts video and audio signals to Australian VHF Channels 1 or 3. These video/audio signals (from units which do not have a built-in RF modulator, such as computers, video cameras, VCRs, image enhancers, or distribution


amplifiers, etc) can then be monitored on a standard PAL colour television set.

The MFJ-1431 is set to accept standard level video and audio signals, although internal level controls are provided to cater for the situation where non-standard levels are presented to the modulator. Input and output impedances are 75 ohms, via RCA sockets, or 300 ohms may be achieved by using a balun/switch, which is supplied. All the necessary cabling is provided with the unit. Operation is from 12V DC, or from an optional 12V, 300mA AC adaptor.

The price of the MFJ-1431 is $215 plus $7 p&p and is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.


## DIFFERENT NOISE BRIDGE

Most antenna noise bridges on the market today provide only a limited reactance measurement range up to 300 or 400 ohms. Some others don't even give their user individual inductive and capacitive reactance readings, only a combined total reactance.

The MFJ Enterprises Model MFJ-202B provides the ability to measure both measurements up into the thousands of ohms range. It can also measure resistance over a similar range.

These wide performance parameters have been achieved by incorporating a switchable range expander in the MFJ-202B. With the range expander switched in, measurements of resistance up to 3 800 ohms, and both inductive or capacitive reactance up to 1 900 ohms may be made. Frequency range extends from 1 to 100MHz.

Each MFJ-202B noise bridge is individually calibrated and provided with a calibration chart prior to leaving the factory. A comprehensive manual, which is also supplied, covers such subjects as 'Finding Antenna Resonant Frequency', 'To Cut a Half Wave Dipole to Resonance', 'Tuned Circuit Adjustment', 'Measurement of RF Amplifier Impedances', 'RF Transformers and Baluns', as well as 'Capacitance and Inductance Measurements'.

The MFJ-202B simply connects in series with the receiver, or transceiver antenna line, and the circuit under measurement. Power source for the bridge is an internal nine volt battery.

Priced at $193, plus $7 p&p, the MFJ-202B is available from GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic. 3132. Phone: (03) 873 3777.

AR

## PART TIME!

A man with all the earmarks of a laborer was smoking thoughtfully and watching a large building in the process of construction. A foreman approached and asked:

"Hey, want a job?"

"Yes," was the reply, "but I can only work mornings."

"Why can't you work all day?"

"Every afternoon I gotta carry a banner in the unemployment parade."

From The Victorian Railways Magazine, September 1927, Vol 4 — No9.

# AIMING HIGH WITH COMMUNICATIONS ACCESSORIES FROM GFS

## SCAN THE BANDS WITH OUR NEW SX-155

### PROGRAMMABLE POCKET SCANNER

This new unique scanner provides coverage of 26-32, 68-88, 138-176 and 380-514 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel. 4 hour life on supplied Nicad batteries. 24 Hour clock. Selectable Scan/Search delay of 0.1 or 2 seconds. Includes Nicads, charger, carrying-case & antenna.

***SPRING SPECIAL***

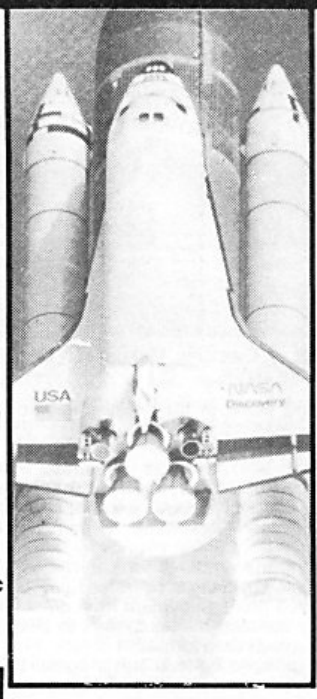
**$399 + $14 P & P**

## AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER

If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS

**SPECIAL $599 + $14 p&p inc AC adapter**

**AR-RS232 Computer Interface for AR-2001 $399** + $8 P & P




## ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE - MFJ-941D

Apart from being extremely versatile the MFJ-941B includes a 6-position coax-switch, SWR power meter, 4:1 Balun and will feed balanced line, single wire and coaxfeed antennas.

**$334 + $14 P&P**

## 2 KW DUMMY LOAD

**MFJ-250** Low SWR to 400 MHz, 2 KW PEP, supplied with transformer oil.

**$89** + $14 P & P

## EXPANDED RANGE OF HF-VHF-UHF ANTENNAS


### BROADBAND ANTENNAS

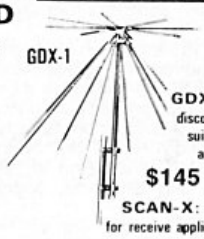
LOG SP – 65 to 520 MHz

**$199 + $14 p&p**

LOG S 100 to 520 MHz

**$139 + $14 p&p**

### BROADBAND OMNIDIRECTIONAL ANTENNAS FOR SCANNERS




**GDX-1**: 16 element discone 80-480 MHz suits transmitters and receivers.

**$145 + $14 p&p**

**SCAN-X**: 6 element discone for receive applications 65-520 MHz

**$92 + $14 p&p**

### HF BROADBAND DIPOLES

New T2-FD series provides continuous HF coverage

**200 WATT MODELS**

3.5-30-T2-FD-200 is 25m long. 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long. 1.8-30 MHz. **both priced at $149 + $14 p&p.**

**2KW MODELS**

3.5-30-T2-FD-2KW is 40m long. 3.5-30 MHz.
1.8-30-T2-FD-2KW is 50m long. 1.8-30 MHz. **both priced at $189 + $14 p&p**

### 2 metre RINGO

The antenna for 2 mx FM work. 9dBi gain, omnidirectional.

**$94 + $14 P&P**

### GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit.

**$23 + P&P**

### RF NOISE BRIGDE WITH BUILT-IN EXPANDER

MFJ-202B

These individually calibrated noise bridges read both inductive & capacitive reactance over a much wider range than the others. Simple to use and covers 1 to 100 MHz

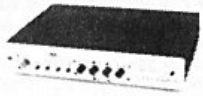
**$193 + $14 P&P**

### FOR THE RTTY OPERATOR

**MDK-17 (KIT) MOD-DEMOD**

A high performance RTTY/CW modem kit for use on a computer or teletype. Offers high noise immunity on receive. **$142 + $6 p&p (Kit) or $219 plus $8 p&p (assembled).**

**MFJ-1224**



Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$345 + $14 p&p**

### Great Circle Map

Now point your beam in the correct direction using this Great circle Map! centred on Melbourne **$2** + $3 P&P.

## LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

| TYPE | 100 MHz | 200 MHz | 400 MHz | 900 MHz |
|---|---|---|---|---|
| 5D-FB | 1.86 | 2.70 | 3.90 | 6.00 |
| 8D-FB | 1.20 | 1.74 | 2.58 | 3.90 |
| 10D-FB | 0.99 | 1.44 | 2.10 | 3.30 |
| 12D-FB | 0.84 | 1.23 | 1.80 | 2.79 |
| RG-8/U | 1.95 | N/A | N/A | 7.44 |
| LDF-450 | 0.75 | 1.40 | 1.80 | 2.50 |

## FB SERIES CABLE & N CONNECTORS

| CABLE | | N-CONNECTORS | |
|---|---|---|---|
| 5D-FB | **$2.90** m | NP-5DFB | **$12.00** |
| 8D-FB | **$4.20** m | NP-8DFB | **$12.40** |
| 10D-FB | **$6.30** m | NP-10DFB | **$12.80** |
| 12D-FB | **$8.70** m | NP-12DFB | **$13.70** |

## RTTY/SITOR & FAX FOR TRS-80C


**DCM** is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.

**RBA** provides transceive on RTTY (BAUDOT) – ASCII.

(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programe.

**DCM $75 + $5 p&p**
**RBA $55 + $5 p&p**

FAX is a high resolution weather facsimile programe for displaying weather maps etc, received on shortwave. It does not need a modem.

**Morse $55 + $5 p&p**
**FAX $75 + $5 p&p**

MORSE is a unique program for sending & receiving Morse code. 1-99WPM

## VHF-UHF SWR-POWER METER

**MODEL HS-370S**

Mobile mount 130-450 MHz, detachable pick-up head,100W CW, 200W PEP, lighted meter.

**ONLY $99 + $8 P & P**

**HF-VHF SWR POWER MODEL HS-260**

3.5 – 150 MHz,0-12 and 0-120 watts, Twin meters, small size

**$65 + $8 P & P**

What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

## NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators, or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

| | DB-4 (4mm) | | | DB-5 (5mm) | | |
|---|---|---|---|---|---|---|
| | Core diam (mm) | Wt of 200mm (gm) | Tensile Str (kg) | Core diam (mm) | Wt of 200mm (gm) | Tensile Str (kg) |
| Debeglass | 2.5 | 3.9 | 430 | 3.0 | 6.3 | 560 |
| Steel wire | 2.5 | 5.6 | 370 | 3.15 | 9.3 | 530 |

**DB-4 (4mm) $0.55m. DB-5 (5mm) $0.78m. DB-6 (6mm) $1.29m. Debclip Termination Clip to suit DB-4, DB-5, DB-6, $4.50 each.**


electronic imports

AUSTRALIAN DISTRIBUTOR

*GFS ELECTRONIC IMPORTS*

Division of Deribar Pty Ltd

*17 McKeon Road, Mitcham, Vic. 3132*
*PO Box 97, Mitcham, Vic. 3132*
*Telex: AA 38053 GFS*
*Phone: (03) 873 3777 3 Lines*

# CLUB CORNER

## DEVIL NEWS FROM THE NW BRANCH

Hello once again to all, and to all the people on the North West Coast that read this column each month, it is hoped that it fills you in on some of the activities of the Branch, especially those unable to attend meetings.

At the last meeting, 25 people attended, plus some students from the Devonport High School, including one YL. The visit was part of their Activities Week, and they were made very welcome.

Much discussion was held, continuing from last month, regarding the problems involved in the erection of towers in the town area.

There were 85 QSL cards inwards and 110 outwards this month. Any member unable to attend a meeting to collect their cards may send a SASE to Max, QTHR as VK7KMF, and he will post the cards to you.

A request has been received to again provide communications for a horse trial. This is a worthwhile exercise and will be a combined WICEN exercise.

Unfortunately, the 70cm ATV aerial has to under-go a re-build, as it has had an altercation with the wind.

VK7NW RTTY Broadcasts have been heard in Hobart, with a good report received from VK7HV.

The Group's WICEN Officer gave a brief lesson on map reading, which proved very popular, and it is anticipated to have another one shortly.

Bob VK7KAB and Kirby VK7KC operated from Guilford during JOTA, whilst Ron VK7RN, with a group of Guides and Brownies, operated from Devonport.

There are several members of the Group showing an interest in Packet Radio. VK7s AX, KDR, ZAP, WP, WN and WZ are starting to get this medium on the air, so if there are any other members interested, please contact Tony VK7AX.

Welcome to new member — John Clayton.

A picnic was planned at Bells Parade, Latrobe for the fourth weekend in November. Hopefully it was a success (as these notes are being compiled in mid-October), and another picnic trip on the Pieman River Ferry is being planned for later this month/early next year.

The Clanger Award for the month was presented to Bill, an SWL, for lending a rig to monitor a news broadcast, without a power lead. It was then necessary to explain the Clanger Award to the visiting students.

Tony VK7AH, a teacher at the High School, as well as attending the Branch meeting, took his electronics class to the East Devonport Ferry Terminal where they were conducted on a tour of the Able Tasman Radio Room. The students have their own call sign, VK7DHS. Members of the Branch have attended the school to speak to them about amateur radio.

VK7SF, recently returned from a trip to England, spoke of his visit to the location where the first Spark Transmissions took place. Following this talk, a video was shown of Hamfest 85 and the Spark Transmission re-enactment by DOC at Hobart earlier this year.

Contributed by Max Hardstaff VK7KY
**AR**

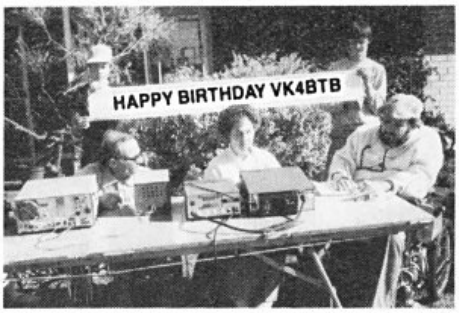
## ANNIVERSARY CELEBRATIONS

The VK4 Disabled Persons Radio Club, VK4BTB, celebrated its Second Anniversary in September, with on-air activities from the QTH of Roley VK4AOR.

Amateurs were in attendance from Toowoomba, and the Darling Downs, as well as Mount Tamborine. Margaret VK4QK, a White-Stick operator from Brisbane, helped to make the day a great success.

Disabled members of the Help Handicapped Enter Life Project (HHELP), the parent body of the Club, also joined in the celebrations.

Contacts were made with amateurs in New Zealand, Suva, Japan, Europe, all Australian states, and some of the smaller Pacific islands. Margaret was also able to speak with man counterparts in New Zealand and Australia.




**From left — Des Orr, Margaret VK4QK, and Graeme VK4NYE.**

The Club worked on all HF bands, making in excess of 50 QSOs. Ray VK4ACU made a few CW contacts, and Ron VK4AGS had a computerised RTTY system operating when conditions permitted.

Following the death of Tony Burge VK4BAC, a young man suffering from Muscular Dystrophy who derived great enjoyment from amateur radio, his family donated his equipment to HHELP. The Radio Club was then formed.

Since its opening on 24th August 1983, the Club, with the main aim is to introduce and involve disabled persons in the hobby, has had a steady membership growth. Today there are over 100 members, approximately 40 of whom are disabled.

Regular weekly contacts on the Friday evening Net (3.590MHz +/- QRM) are kept with disabled operators from all states of Australia, as well as New Zealand.

Types of disabilities encountered include Blindness, Multiple Sclerosis, Quadriplegia, Cerebral Palsy, Polio, and even severe speech impediments. When speech become difficult to understand, or embarrassing, CW can be used to great effect.

The Club is considering the possibilities of asking all disabled individuals, clubs, and other interested operators to participate annually in 'on-air' activities on a suitable date close to the Club's anniversary. It is also pondering the feasibility of circulating a questionnaire, with the idea of compiling lists of amateurs prepared to help disabled people with their study, as well as general assistance for disabled persons. By centralising such information, it is felt more people could become involved thereby not only achieving more operators on air, but a greater awareness of disability, which can only lead to more people participating equally.

Any comments from amateurs Australia-wide would be appreciated. Write to the Club at Box 3126, Town Hall, Toowoomba, or phone Roley VK4AOR on (076) 96 7587, or Graeme VK4NYE (076) 30 8323.

Contributed by Roley Norgaard VK4AOR
STATION MANAGER VK4BTB
**AR**

## WESTERN SUBURBS RADIO CLUB

On 7th September 1985, the Western Suburbs Radio CLub and the North East Radio Group combined to present the "Lakeside Hamfest".

The Hamfest was held at the Western Suburbs RC meeting rooms, at picturesque Edwardes Park Lake, Reservoir.

With perfect weather, and a wide variety of activities, it was the ideal setting for many amateurs and their families to meet others in a relaxed social atmosphere. Attendees had a chance to view a wide selection of equipment provided by a comprehensive trade display.

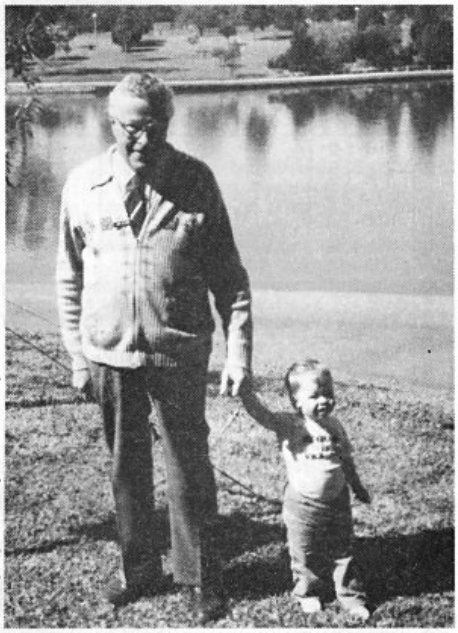
Hamfest traders and buyers were kept busy trading in pre-loved equipment, with many buyers clutching prized acquisitions, whisking them off to the safety of their motor vehicles, then returning for more goodies.

Photograph courtesy Fred Taylor VK3KLL

**Bargains were plentiful at the Pre-Loved Display.**

One special guest was Her Worship, the Mayor of Preston, Councillor Helen Davis. Councillor Davis, together with her husband Chic, strolled casually around the displays, asking questions, and mingling with the many other visitors. Councillor Davis expressed keen interest in the work of both radio clubs, and the hobby of amateur radio. Although not initially aware of the value of amateur radio in its many guises, and the popularity of the hobby, Councillor Davis gained invaluable knowledge through visiting the Hamfest, and has pledged practical support for any future ventures the clubs may undertake.

Icom Australia, Am-Comm Electronics and Werner Wulf kindly donated some equipment to the clubs for use as prizes, with Ted VK3ZKP and Geoff VK3XUK being the eventual winners.

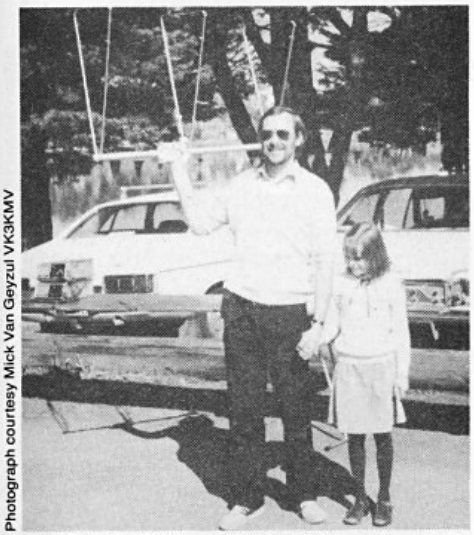


Photograph courtesy Mick Van Geyzul VK3KMV

**Tom VK3AGH has another budding amateur in tow. The little T Shirt reads; 'My grandpa is VK3AGH'.**

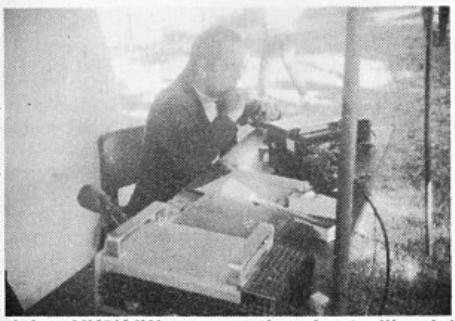
Photograph courtesy Mick Van Geyzul VK3KMV

**Part of the Trade Display.**



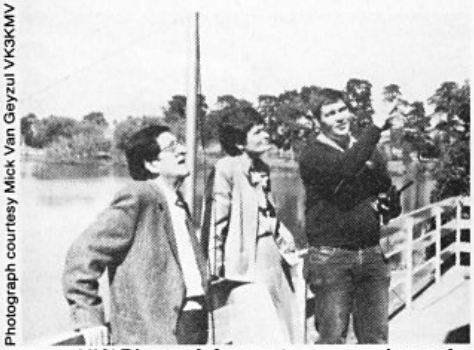
Photograph courtesy Mick Van Geyzul VK3KMV

**Geoff VK3XUK proudly hold his prize aloft, whilst his daughter is horrified of 'more junk around the shack'.**



Photograph courtesy Fred Taylor VK3KLL

**John VK3KJW was active in 'calling-in' visitors on 2 and 80 metres, using the WSRC call sign, VK3AWS.**



Photograph courtesy Mick Van Geyzul VK3KMV

**Mark VK3PI, explains antenna systems to the Mayor of Preston and her husband.**

Undoubtedly, the highlight of the day was the 'Radio Throwing Contest'. Ten ladies entered this prestigous event, and the judges, Richard VK3CRH and Mark VK3PI were forced to modify the rules as the event proceeded. The results were:

*Longest Distance . . . Gayle Stephenson, XYL of VK3PI.*
*Largest Divot . . . Pamela Gill.*
*Smallest Divot . . . Val Henderson.*
*First to Break the Radio . . . Marg Baxter, XYL of VK3DBQ.*
*First to Make a Piece Fall off the Radio . . . Betty Page, XYL of VK3AGH.*

Throwing styles were unorthodox, to say the least, but all participants, and amused spectators, enjoyed the event. Winners were presented with WSRC/NERG Certificates.

The Hamfest was a great success, and plans are already being made for another one next year. Thank you to all for making the day such a success.

Contributed by Mark Stephenson VK3PI

**AR**

# BOOK REVIEW

## MICRO AND TELEVISION PROJECTS

John Ingham VK5KG
FEDERAL VIDEO TAPE CO-ORDINATOR

*Is there an amateur television enthusiast in Australia who has not yet heard of the British Amateur Television Club and their magnificent publications?* Well, if YOU are such a person, read on!

For more than 32 years, the BATC have published their quarterly magazine 'CQ-TV', and over the years it has become the 'ATVers Bible'. While there have been other magazines available, which feature ATV, CQ-TV has consistently provided more construction articles than any other.

In 1981-2, the BATC produced volumes one and two of the 'Amateur Television Handbook', each having almost 100 pages crammed full of completely new projects designed by a team of engineers headed by Trevor Brown G8CJS. Every aspect of ATV was addressed and while the two volumes were universally recognised as the definitive works on the subject, they were recently updated by 'The Revised Amateur Television Handbook'.

And yet, in 'Micro and Television Projects', Trevor has again produced, what is, except in name, Volume 4 of the series. This time, reflecting the current ATV trends, he has expanded the scope of work to include circuits which allow micro-computers to become integrated into the ATV shack.

Following is a list of the topics examined within the booklet:

***CHAPTER 1:** A Simple ATV Station*
*Test Pattern and Sync Generator**
*Electronic Caption Writer**
*Simple Vision Switcher**

***CHAPTER 2:** The Best of the Handbook*
*Electronic Testcard**
*PAL Encoder**

***CHAPTER 3:** SECAM Encoder*

***CHAPTER 4:** The Home Computer*
*A technical description of the Sinclair 'Spectrum'*
*Spectrum User Port**
*Computer Controlling Character Generators*
*Spectrum EPROM Programmer**
*RS-232 EPROM Programmer*
*Spectrum Picture Freezer*
*Teletron Hamshack Micro-Controller**
*Teletron VDU*
*Ham Text — an Amateur Teletext-like System*

**Printed Circuit Boards (PCBs) are available for the projects marked ***

As compared to the very wide range of topics covered in the handbooks, (Aerials, Feed-lines, Tuners, Receivers, Transmitters, Modulators, Processing Amplifiers, RF Probes, Character and Test Signal Generators, Cameras, Aperture Correction, Video Switchers, Colour, Slow Scan TV, Teletype, and Microwave), the scope of this new work is more specialised. Certainly, beginners in ATV would be well advised to first start with the 'Amateur Television Handbook'.

But, if you are looking for a new challenge in ATV, 'MICRO AND TELEVISION PROJECTS' could well be the stimulus you are looking for! Certainly there is a place for this publication on the book-shelf of every ATVer.

The booklet contains 86 pages in total, 44 pages of text, eight block diagrams, 27 circuits, 10 PCB 'top view' overlay diagrams, five illustrations and nine software listings, and is laid out in the competent manner in A5 size pages familiar to readers of CQ-TV.

**MICRO AND TELEVISION PROJECTS is written by Trevor Brown G8CJS and published by the British Amateur Television Club. It will shortly be available from Divisional Bookshops.**

**AR**

## USER TRAINING MANUAL

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060

This manual is designed to accompany a basic three-lecture User Training Course presented by IPS personnel. Introducing the Ionosphere; Formation of the Ionosphere; Production, Loss, and Redistribution of Electrons; Deflection and Absorption of HF Radio Waves; Ionospheric Variations; Solar Cycle Variations; Oblique Propagations; Predictions; Sun-Earth Environment; Solar Activity; Effects of Solar Activity; IPS Services are some of the topics covered in this book.

There are 125 pages with plenty of diagrams, Glossary, etc.

This book is highly recommended to those who wish to know more about propagation, and is available for $12 posted from IPS, PO Box 702, Darlinghurst, NSW. 2010.

**AR**

## ERITH ISLAND

Ken Gott VK3AJU, plans to operate again from Erith Island, located in the Kent Group in Bass Strait, from around 22nd December, for one month. Dates are approximate as sailing conditions may delay the arrival on Erith, which is uninhabited. Equipment will be an IC745, and G5RV, at 30 feet (9m).

Ken operated from Erith, as VK3KGX/7, during the Christmas period of 1982-83, and again in 1983-84, as VK3AJU/7. Operation then was mainly on 3.5MHz at night, with occasional visits to 7 and 14MHz.

The group that ventures to Erith each year has some 20 years continuity, and most members have been aquaintances even longer, The island is not known for its *great* DX location, but the island allows plenty of time for operating, and, with its ample growth of ti-tree and scrub, some opportunity for experimentation with wire antennas.

## DEFINITIONS

AUTOMATIC LEVEL CONTROL . . . a magazine used to prop up the front of the rig so you can read the dial more readily.
ANTI-TRIP DEVICE . . . a really short microphone cord.
RESTING CURRENT . . . what you get when you touch the HT terminal on your linear.
MODULATION ENVELOPE . . . the one your telephone bill comes in.
ENVELOPE DETECTOR . . . a letter box.
PRODUCT DETECTOR . . . the name plate on the rig.
PTT . . . noise of a fuse blowing.

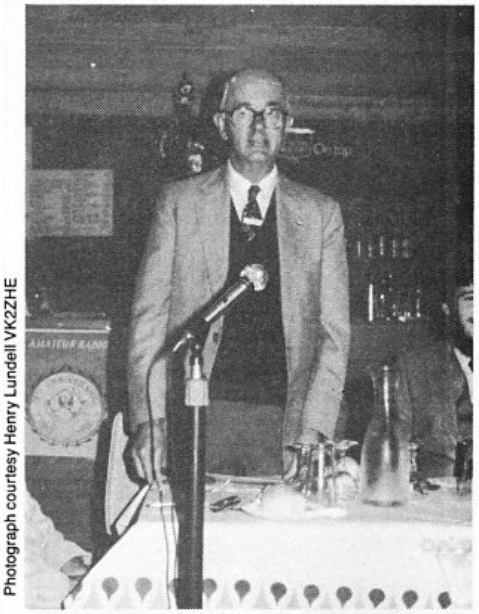
From BARG News, August 1985.

# VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

Photograph courtesy Les Pall VK2KCP

From left: Maurine Lavery (Administration Secretary), Peter VK2PJ (President VK2), Roger VK2ZIG/NWH (Vice- President), Jeff VK2BYY (Secretary), Peter VK3KAU (Federal Executive), Steve VK2PS (Federal Councillor), Tim VK2ZTM (Alternate Federal Councillor), Wally VK2DEW (Alternate Federal Councillor), Lyle VK2ALU (1984 Ron Wilkinson Award Winner). In the foreground are the 75th Anniversary Cup and the RD Trophy. The Cup was won by Peter VK2PA in the 1985 WIA CW Contest, and the Trophy was won by VK2 in 1984.



Photograph courtesy Henry Lundell VK2ZHE

Lyle VK2ALU.

Photograph courtesy Henry Lundell VK2ZHE

Lyle VK2ALU, receives the Ron Wilkinson Achievement Award from Peter VK3KAU, at the VK2 Anniversary Dinner, October 1985.


Photograph courtesy Henry Lundell VK2ZHE

Keith VK2AKX, Founder of Westlakes Amateur Radio Club.

Photograph courtesy Les Pall VK2KCP

Peter VK2PJ, presents Peter VK3KAU, with a VK2 produced WIA Car Badge. In the foreground is Jeff VK2BYY.

## VK2 ANNIVERSARY DINNER

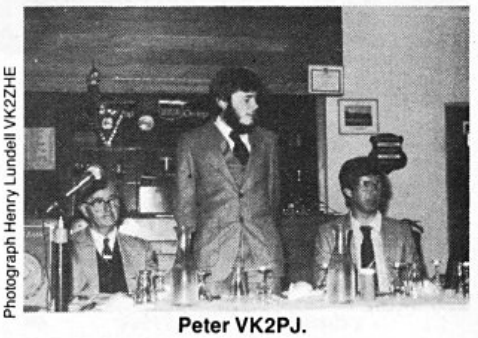
On Saturday, 12th October 1985, members and wives attended the Division's Anniversary Dinner.

Photograph Henry Lundell VK2ZHE

Peter VK3KAU, presents Tim VK2ZTM, with a 75th Anniversary Medallion.

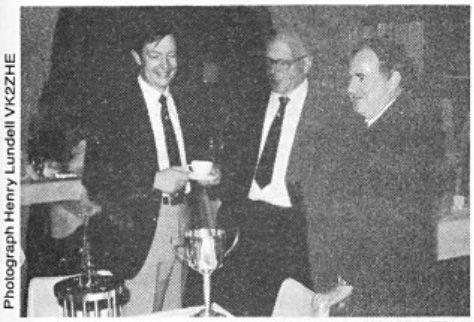
Special Guest for the evening was Peter Wolfenden VK3KAU, representing the Federal Executive and a past-Federal President of the WIA.

Peter presented Lyle Patison VK2ALU, with the 1984 Ron Wilkinson Achievement Award Certificate, which Lyle won for his dedication to the Moonbounce Projects.



Photograph Henry Lundell VK2ZHE

Peter VK2PJ.

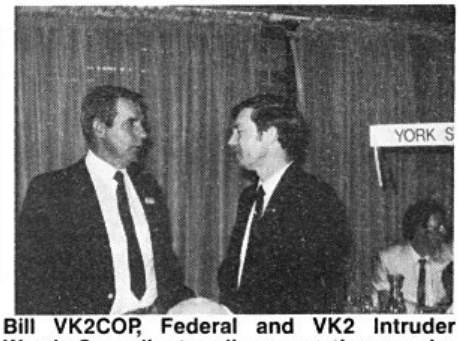


Photograph Henry Lundell VK2ZHE

Peter VK3KAU, Wally VK2DEW, and Tim VK2ZTM.

Photograph Henry Lundell VK2ZHE

Peter VK3KAU, Federal WIA Representative addresses the Dinner.



Photograph Henry Lundell VK2ZHE

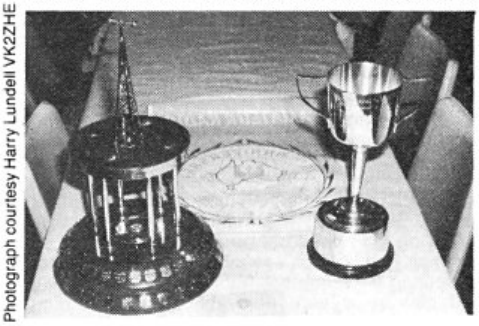
Bill VK2COP, Federal and VK2 Intruder Watch Co-ordinator discusses the new Intruder Watch Certificate with Peter VK3KAU.

Photograph Henry Lundell VK2ZHE

From left: Peter VK2PJ, Peter VK3KAU and Steve VK2PS.

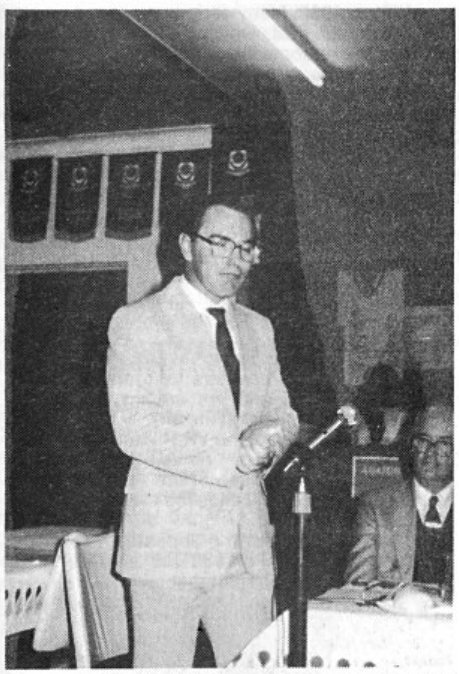
Photograph courtesy Henry Lundell VK2ZHE

**The VK2 Anniversary Dinner was at time for many get-togethers. From left: Stephen VK2TQ, Roger VK2ZTB, and Wally VK2DEW.**



Photograph courtesy Harry Lundell VK2ZHE

**The RD Trophy and the 75th Anniversary Cup together in VK2. It is hoped the awards will meet again in VK2.**



**Roger VK2ZIG, Master of Ceremonies for the evening.**

Photograph Henry Lundell VK2ZHE

**Peter VK3KAU and Wally VK2DEW.**

It had been some years since a dinner had been held by the Division. The 70 people who attended the dinner all agreed it was an excellent night. Perhaps dinners of this type can again become a regular feature of the Divisions activities.

## ANNUAL GENERAL MEETING

Members are reminded that the Division's administrative year ends on 31st December. This is the date to close off the books, submit reports, etc for the AGM, which will be held on the Saturday after Easter.

## HOME-BREW CONTEST

*Have you something to enter in the Home-Brew Contest?* Entry forms are available from the Divisional Office, which is open between 11am and 2pm weekdays, and Wednesday evenings from 7 to 9pm. Ring (02) 689 2417 or write to the post box address shown at the top of this column. Entries will close at the end of February 1986.

## HOLIDAYS

The VK2 Divisional Broadcasts will cease over the Christmas holiday period, and will resume in mid-January. The last broadcast will be on 22nd December.

## PLEASE WRITE!

*Have you been using the 80 metre transmissions of VK2RCW, on 3.669MHz?* If so, would you please write your comments and send them to HADARC, PO Box 362, Hornsby, NSW. 2077. The six month trial period on HF is nearing the review time — see report in September's AR.

## PAGERS

Previous mention has been made in these notes that the two metre band, and the repeaters in the top megahertz have been having a problem with the adjacent pager band. An extensive discussion paper has been prepared and was ready for distribution in October, when there were delays in the postal service.

It is hoped that all repeater groups within this State, as well as all other Divisions will have received their copy by now, and your replies to the enclosed questionnaires are starting to be returned. We would like to have these at hand before the end of the year. A few copies of the paper are available if any member would like to contact the Divisional Office. An article on the problems is being prepared for inclusion in AR next year.

## REPEATERS

While on repeater matters — interest has developed in the Sydney region during this year to establish ATV repeaters. The terrain of the region makes its difficult to provide a single site coverage. This means that more than one system is likely to develop. To date, the Sydney ATV Group have submitted an application to establish an outlet in the lower Blue Mountains. Gladesville ARC, who have been conducting simplex transmissions on Wednesday evenings, have relocated their site to the upper North Shore.

They have advised that they wish to develop the facility into a repeater. There are also those who wish to use the allocation in a simplex capacity. So that all requirements can be looked at, would any other group, or person, with an interest to develop a repeater, or conduct simplex operation, using the 50cm-channel 34 segment, please advise the Divisional Office, in writing.

A system will have to be devised of time-sharing, or similar, for all interests to share the allocation. The Newcastle region has an ATV repeater to the operational stage, but their operation is unlikely to be affected by the requirements of the Sydney region.

## PACKET RADIO

Packet Radio has continued to develop. Interest has been to develop repeating facilities, which provide range extending. The Oxley Region ARC have advised that they will be adding packet, as well as UHF voice repeaters to their existing VK2RPM system.

## ERRATA FOR CONFERENCE OF CLUBS

The Conference of Clubs was not held last month, as announced in November AR. It will, instead, be held on 8th December 1985, same location . . . Westlakes ARC.

## THE END!

It is almost to the end of the Institute's celebrations of its 75th year. The VK2 Division will not conclude its period until March 1986. Material is still being collected for the 'Time Capsule' — see March 1985 AR.

On behalf of the Council, and all its Office Bearers, may I wish one and all the Season's Greetings, and the very best for 1986.

de Tim VK2ZTM

**AR**


# FORWARD BIAS

## VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

### MEETINGS FOR 1986

There will be no VK1 Divisional meeting in December, due to the Christmas holidays. The next meeting will be on the 20th January 1986, at the Griffin Centre, Civic. Doors will open around 7.45pm, for the bookstall and QSL bureau, with the meeting commencing at 8pm. At the time of writing, the topic had not yet been confirmed, but will most probably be a video-tape evening.

The Annual General Meeting for 1986, will be held on Monday, 24th February, at the Griffin Centre, starting at 8pm. One of the functions of the AGM is to elect office bearers for the 1986 year. All members of the VK1 Division are eligible to strand for election to any committee position, and it appears that a number of long serving members may not stand for re-election. Any member interested in standing for a committee position should contact the Public Officer, Alan Hawes VK1KAL, for nomination forms and further details. Serving on the committee can be very satisfying, and need not be an onerous task if all pull their weight. This could be your chance to put something back into our hobby of amateur radio, and can be a very enjoyable, and rewarding experience.

### JOTA 1986

The VK1 Division operated three stations on the JOTA weekend, from all reports with great success. While propagation could have been better, all stations reported reasonable interest from the Scout and Guide Movements. Thanks must go to Alan VK1KAL, Karl VK1KCM, and Adrian VK1NYA, who co-ordinated activities at the three stations, and to the many other amateurs who provided their time and equipment for the weekend.

One of the stations, VK1BP, operated from Camp Cottermouth, where almost 400 Scouts participated. Most Australian States, and New Zealand were contacted, and all those on the camp had a great time. A more detailed report on the VK1 activities in JOTA should be forthcoming shortly.

That is all from me for this year. Thanks to all those who provided information to me for inclusion in the column, and for those taking holidays over the next few months, have a good time, take care, and we will see you next year. I take pleasure in wishing all members, a very Merry Christmas, and a prosperous New Year, on behalf of the VK1 Division.

AR

# FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

*Have you ever had one of those days when you felt you should go back to bed, and start again tomorrow?* Well, I've had a whole month like that!

Last month, in this column, I gave the Picnic a big "plug". I then received a telephone call to say that we would not be able to hold it at Bridgewater Oval in November, as the Oval is being dug up for drainage and sprinkler systems installation. Of course, by this time, everything else had been booked out. It has now been decided to postpone the Picnic until the first or second week in March 1986.

And, if that wasn't enough. I was informed that the RSL Hall, in which we hold our Christmas Social, was having some urgent repair work done, and may not be finished in time to hold the December meeting. I am expecting news on this one at any minute (or hoping, at least!).

The third major outside venue is the Parnanga Camp-site for our Clubs' Convention — *what could go wrong with that?* Well, they had us double-booked with another group for the weekend of the 11-13th April 1986, and we are still trying to sort out who will go where.

### OUTSIDE BROADCAST

There were some brighter spots in the month, though. Bob VK5ADR, restored my faith in human nature when he volunteered to set up a station at Hectorville Primary School, for their Communications Day. Bob volunteered within half an hour of my request on the Broadcast. We shared the day with 5EBI, the Commercial Radio Station, who had their Outside Broadcast van set up in the playground.

### LIBRARY SHACK

When I arrived at midday, I found the school library looking more like an amateur's shack. Peter Koen had done his usual excellent job with various displays around the walls. Bill Gill VK5NVM, whose son was on the cover of October's AR, had lent his display of old valves, etc. Lindsay VK5GZ, was fascinating the children with his CW contacts, and Bob VK5ADR was kept very busy typing the children's names into a teletype machine, which in turn, relayed the information to a second machine, which produced a punched tape. Each child got his or her name, and relevant piece of punched tape to take home.

During the lunch break, we managed to keep a pre-arranged sched between one of the teachers at the school and her brother, Kevin P29KM. The teacher was delighted to be able to speak with him, and is now considering sitting for a licence herself, in due course. Colin Ralph VK5KCR, was officially with 5EBI, but came in to have a chat with us, and then took me back to have a look at their gear and meet the crew.

Thanks must go to Bob VK5ADR, and the others for a most successful day.

### DIARY DATES (what optimism!)

Tuesday, 10th December — Christmas Social with speaker Geoff Taylor VK5TY. Geoff will speak on the First Burra to Broken Hill Wheelbarrow Race. Bring your YL/XYL/OM and a plate of supper.

AR

# QSP

### PLANNING FOR AUSSAT

AUSSAT's space and communications manager, Dr Wayne Nowland has stated that, due to rapid technological development designing the next generation of satellites, it is necessary to estimate communication needs of the 1990s.

Plans are to be completed by 1987, and the new AUSSATs launched in 1992. To be taken into account, was the expected increased demands for personal communications, using small earth stations.

Satellite technology will be the catalyst for inventiveness and entrepreneurial activity to develop the necessary new person- to-person services.

# VK3 WIA NOTES

### WHERE WE STAND

By now most members will have received their annual WIA membership renewal notice.

The fees have been frozen at last years level, with the exception of the Student Grade, which has been reduced to $15.

Increased membership in the Division has been a factor enabling the fees to be kept to a minimum.

Another year of membership growth has been experienced in VK3 with about 70 percent of active radio amateurs in Victoria being WIA members.

A brief explanation, may be pertinent, about the 40 percent decrease in the Student Grade. This step has been taken, as part of a Youth Development Programme, to encourage more youngsters into the hobby.

Your Division has three main sources of income — the Divisional portion of subscriptions, sale of disposals equipment, and book sales.

Following is a brief resume of the last four years operation.

The Division had a very difficult period from the late 1970s to 1982. Many serious problems had to be faced by Council, which had to make tough decisions to overcome the difficulties.

That crisis period is now behind us, but it is worth looking at the Council's achievements. In 1982, it paid off the Victorian Divisional Headquarters mortgage of $12 727 (current market value of the building is $120 000), which gave financial stability and enabled Council to embark on other projects.

During the four years, 1982-85, the VHF/UHF repeaters have been substantially upgraded, and many new ones installed. The small group of radio amateurs who install, and service the repeaters deserve the credit for the standard of repeaters now available for general use, and in times of emergency.

However, many radio amateurs, particularly non-members, take repeaters for granted, do not contribute to them, and are among the first to complain if a repeater is off the air.

In the past four years, the VK3 Council has used $28 000 of members funds for repeater installations and repairs. There is site costs, insurance, power, and licence fees to be paid each year on repeaters.

The all-up capital worth of repeaters in Victoria would be in excess of $33 000 — this asset belongs to you, the WIA member.

Other major expenses incurred during the past four years by the Division include:

| | |
|---|---|
| *Office Postage* | *$4 000* |
| *Rates* | *$3 628* |
| *Insurances* | *$7 732* |
| *QSL Bureau* | *$9 342* |
| *Office Typist* | *$15 600* |

Without the efforts of a small group of members responsible for the revenue through disposals equipment, and book sales, the Division would not have had $15 000 to spend. There efforts are making cheap services available to members, and at the same time, contribute to the Division's financial well-being.

The VK3 Divisional Council looks forward, with confidence, that the number of members will continue to grow. After all, this Division is recognised as having the best range of membership services, including a **free** QSL Bureau for members. At 75 cents per week (even less for pensioners, students, and family members), WIA membership is value for money in terms of service provided, and as an insurance policy for your hobby.

AR

# VK4 WIA NOTES

Bud Pounsett VK4QY Box 638, GPO, Brisbane, Qld. 4001.

Nearly every Sunday, the Divisional President, John Aarsse VK4QA, speaks to members on the weekly broadcast from VK4WIA. Here is one such script from September.

*Communications is the key to our hobby, so it is said by many. But do we communicate effectively? Looking around, one would say, communication skills are the worst in any communication organisation, be it in the hobby field or professionally.*

*Too often, many details are taken for granted. Council, when it has made an announcement, assumes that members will remember it forever . . .members assume that a mere mention of a problem will automatically be followed up by a solution.*

*Unfortunately, this is not the case and, while attending the Townsville Amateur Radio Club Convention, this was brought home to me in no uncertain way. And I am thankful that it was brought to my attention, and that is part of our communication exercise.*

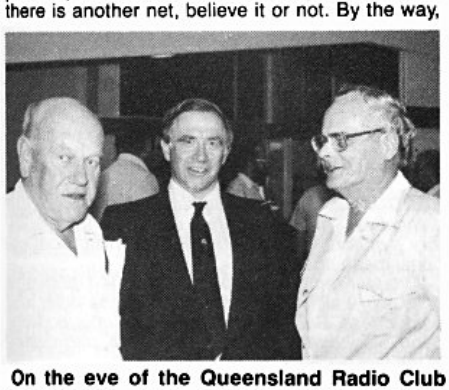
*So, here is a summary of a reasonable communications solution, applicable to our Division. If you have serious problems, say with non-receipt of AR, or cannot find out how to form a local radio club, or your club wants to put up a repeater, contact, in writing, the WIA Q Secretary. He/she will direct it to the right person, who will then answer you direct. In this manner, you have a written record and you are able to study your question, and the answer you receive, at your leisure. But, as all of our Council Members are volunteers, and thus have certain family commitments, you will not always receive an answer by return mail. If you wish to have such a service, even within the WIA Q, the expression "the user pays" applies.* In other words, the fees will have to rise to allow your Division to employ staff. This other method will cost you the price of a postage stamp.

Another method is to use the telephone. This is not always recommended, as the person may not be at home and, if one lives outside the particular call-area, it may become an expensive exercise.

The last method is more in line with our hobby . . . use the airways. It may not be a private line, but there may be others who always wanted to ask the same question, but were afraid to do so.

As far as this Division is concerned, the following ON-AIR possibilities are as follows:

***Tuesday evenings,*** *from 0930UTC on approximately 3.605MHz, VK4AWI and the Queensland Radio Club Net.* It is primarily intended as a contact line between Council and representatives of the VK4 Radio Clubs. If time permits, individuals can check in, but for them there is another net, believe it or not. By the way, VK4AWI is presently operated by Council Member, Bill VK4UB.



**On the eve of the Queensland Radio Club Conference, 1985, at the North Brisbane Radio Club, three presidents were together, representing the WIA structure. From left: Bill Donovan VK4AKV, North Brisbane Radio Club President, David Wardlaw VK3ADW, Federal WIA President, and John Aarsse VK4QA, Queensland Divisional President.**

***Thursday evenings,*** *from 0930UTC on approximately 3.605MHz, the Queensland Net.* Unfortunately, a lot of operators think that this net is there solely to amass Cities, Towns, and Shires for the Queensland Award. This is not so. Its primary aim is to be a contact point between Council and members and non-members alike, on a regular basis. In the past, many problems have been solved, either on the spot, or after one week. Only one or two tricky questions required a longer waiting time as it involved checking with, either DOC or Federal Executive.

After some time of operations, there were no questions forthcoming, and it became a meeting point for those wishing to contact the many Shires, Cities, and Towns, in Queensland. But please remember, the purpose of the Queensland Net is still primarily a contact net, and those with questions to ask will have priority. Often, if an important item is available, this will often be announced at the start and repeated later in the net. After all, the Queensland Net was the first to officially announce the extension of the 80 metre segment for Novice operators, some years ago.

Further, since this is a regular net, any portable, mobile, or fixed station should know it is possible to squeeze a possible emergency call through at this point in time.

The net controllers are John VK4QA, Max VK4BMW, or Val VK4VR. Of the three, John and Val are Council Members. If Max has control, a Council Member is usually on the side listening. If there are no questions, the Queensland Net will happily chase all those elusive Shires, etcetera. By the way, 3.605MHz is the WICEN frequency in Queensland for state use.

The final method of getting a message through, with some reservations, is during the Call-Back after the News Broadcasts.

This is not recommended, as it could be time consuming, and many would like to get on with their Sunday chores. Also, it could put extra pressure on the Call-Back controllers if they are not Council Members. They may forget the message, or cannot get in contact with a Council Member in time for the next Call-Back.

So, unless you know that the Call-Back-Controller is a member of Council, do not use the Call-Back to ask questions or put forward suggestions. It will not always reach Council, the very people who you want to consider your proposals.

So, in conclusion, a recap of methods of communication between members and council:

*Do it in writing to GPO Box 638, Brisbane, Qld. 4001. If you know to what section it should be directed, put that on the envelope, you may save valuable time.*

*Use the airwaves, as a Club Representative each Tuesday at 0930 UTC, on around 3.605MHz, with VK4AWI as controller.*

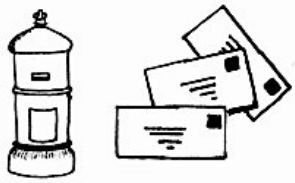
*As a member, or non-member, use the Queensland Net, each Thursday, at 0930UTC, on or around 3.605MHz, with either VK4QA, VK4VR or VK4BMW as net controllers.*

*During call backs, after the news, but this method is not guaranteed to give immediate results, unless a Councillor on the Net is willing to offer some of his/her Sunday time.*

I hope this has given you some insight on a possible effective communications system within our hobby in VK4. This information may be repeated from time to time to alert new licensees of the recommended types of communications with their Division.

AR

**SEASONS GREETINGS from VK4**



# OVER TO YOU!

**Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.**

## THE ROSS HULL CONTEST

It is not so distant past when this was a marvellous contest when every VHFer,'worth his salt', was out there changing reports.

Since then, the so called 'Big Guns' (many of which I would consider friends), have cramped the style of the smaller operators. It seems we now may need modification to the contest layout. Where-as, before if you worked three or more bands, your points score from multipliers soon soared pretty high.

Consideration needs to be given to a possible 'single band' section of the contest, where an amateur can select a favourite band, (in my case six metres), or the band on which the operator is best equipped to compete.

I have discussed this with many fellow VHFers throughout Australia and feel that this may give the Ross Hull a new breath of ionosphere. I realise this may complicate a once simple, but dying contest. So maybe someone will win the 10GHz section with a single contact, but at least someone was active, which is the whole essence of the contest.

What do others think?

See you on six metres during the contest.

Best wishes,

**Peter Sumner VK8ZLX,**
**Alice Springs, NT. 5570.**
**AR**

## PHONE PATCH

Telecom Australia would appear most unsympathetic to Australia's most diplomatic, law-abiding, and best international ambassadors .... a group which has neither the political power nor the finance with which to protect itself or its interests, .... I refer to the Amateur Radio Service.

Telecom's answer to a request, from the Amateur Service, for phone patch privileges is contained in their document, "Interconnection of Mobile, Amateur, and Citizen Band Radio Communications" with the Public Switched Telephone Network, Policy, and Conditions, Issue 2, June 1985. This document is so restrictive that it makes the use of the telephone system, by the Amateur Radio Service, unbelievably difficult. Also, Telecom want us to pay a surcharge (in addition to the regular telephone charges) for no more facilities than normal use of the telephone. The Department of Communications makes **no** extra charge for third party privileges!

The Amateur Service cannot, by DOC regulation, make any form of profit whatsoever, and cannot recover any costs — not even the standard telephone charges.

Please help us to encourage Telecom to modify their unnecessary rules and regulations, and remove their demands for unwarranted surcharges on the Amateur Radio Service.

Yours sincerely.

**Tony Tregale VK3QQ**
**38 Wattle Drive,**
**Watsonia, Vic. 3087.**
**AR**

## WHERE ARE THE YOUNG ONES?

With the assistance of Amateur Radio, I would like to call the attention of the younger members of the fraternity.

As part of a small group of young, radio orientated people, I would like to hear from any others in the same position. My primary aim is to come up on air in a net to chat on our own wavelength (so to speak!).

I am aware of the presence of other young amateurs, but unfortunately cannot seem to catch up with them. I also realise that there are some school groups around.

So, how about a national, or perhaps international 'under 18s/21s' net. If things work here in Australia, I will send similar letters to overseas magazines.

If you are interested, or know of anyone who may be interested in the idea, please contact me.

Yours sincerely,

**Nick Morgan-Hobbs VK6EU,**
**7 Eltham Place,**
**Kingsley, WA. 6026.**
**AR**

## 75th ANNIVERSARY

Greetings and congratulations on the 75th Anniversary of the Institute. May there be many more with the passing years.

The kind thought of the Anniversary Gift is much appreciated, and rest assured much more activity will be heard on the WARC bands in the future.

Best regards,

**Noel Lawton VK4NL,**
**50 High Street,**
**North Mackay, Qld. 4740.**
**AR**

## WARC BANDS

Many thanks for the WIA gift pack, presented as a result of me being heard on the WARC bands — 18 and 24MHz. I feel that a resume of these bands may enlighten all on the happenings on these two bands.

I commenced operation in these bands on 2nd January 1983, and on 24MHz have worked GW, G, Germany, and VKs 2, 3, 4, 5, 6, and 7. I am also active on 10.1MHz.

On 18MHz, I have worked 20 countries including; G, GW, GM, I, C21, F, VU, A35, LA3, HB9, FR7, VP9, YU, OZ, OE, T30, ZL, many stations in Germany, ZS, and LU1/MM in the Indian Ocean. All VK States have been worked except 1, 8, 9, and 0.

For about the past 2 years, I have had the advantage of a home brew programmable CW CQ Caller (used on eight HF bands), on 18MHz. The Caller keys my transceiver as a 100W **manned** beacon, while I am busy writing out QSL cards, filing QSOs into a filing card system, or building up another CQ Caller.

It is sad to say, but 18MHz has also gone down, with DX contacts being very rare. But, as some say, this band will be a really good one, when propagation improves.

73,

**Lindsay Collins VK5GZ,**
**VK5 Intruder Watch Co-ordinator,**
**12 Park Avenue,**
**Rosslyn Park, SA. 5072.**

*Lindsay, you may care to write-up the construction of your Caller for publication in AR — Ed.* **AR**

## NOW IN TOUCH

Congratulations on an excellent magazine, and I especially like the Pounding Brass column. The magazine is my only contact with the WIA, so I really appreciate it a lot.

Would any readers be interested in an interface to drive the rig with CW taped on a recorder? I am building my third prototype now.

73,

**Gil Brownrigg VK3CGG,**
**7 Church Street,**
**Bright, Vic. 3741.**

*Are there any members interested? If so, drop Gil a line and encourage him along the author's path. — Ed* **AR**

## OBITUARY TO THE VHF/UHF/SHF AMATEUR BANDS

I read (with a feeling of sorrow at having lost a good friend) the paragraph in the October 1985 issue of AR, entitled 'A Woodpecker on 427MHz' (VHF UHF — an expanding world). What has been forecast by myself, and others that watch the amateur scene overseas, has come to pass. The commercials have commenced to take over amateur frequencies that offer great potential for the future.

I can now throw away the equipment I have spent so much time and money building, and improving. Nobody in their right mind would want it now.

Warnings that *at all costs* exclusive segments must be secured in all UHF and SHF amateur bands have fallen on deaf ears, and now it is too late. The head in the sand attitude of 'it won't happen in Australia', aided by a lack of support by some groups has lost us our VHF, UHF and SHF bands.

Some of us will mourn their loss.

**G Wiseman VK5EU,**
**19 Washington Street,**
**Hilton, SA. 5033.**
**AR**

## SCOUTING

This photograph was taken in 1922, a year before I came to Australia. I am now 81 years of age, so I would have been about 18 at the time.

I was in the Sixth West Hampstead Troop, and met Sir Baden-Powell many times, also King George IV and King Edward VIII, as they used to visit our camps.

This was the time also, when I first became interested in radio, as I learned Semaphore and Morse signals.

I can still remember the first crystal and valve sets that I built with Mullard valves and honeycomb coils.

Yours sincerely,

**Albert Shire VK3OZ,**
**173a Eighth Street,**
**Mildura, Vic. 3500.**
**AR**

## Help Save Amateur Radio Language

The Macquarie Dictionary defines the word ***LANGUAGE*** as *"Communication by voice in the distinctively human manner, using arbitrary auditory symbols in conventional ways with conventional meanings".*

*Amateur radio has a long established language of its own which adds to the hobby's character and uniqueness. But the language has, unfortunately, been overlooked by some newcomers, particularly in the last decade.*

*A few old hands are also to blame for not using the language correctly, or failing to encourage others to speak it as it should be spoken.*

*The vocabulary of some radio amateurs includes phrases like 'come-back'.* Everytime this is used on a repeater I, and others mumble to ourselves *'come-back from where'.*

Another phrase gaining popularity is *'I've got to*

# Silent Keys

***It is with deep regret we record the passing of —***

MR WILLIAM N BULLIVANT VK2BC
10th September 1985

# Obituaries

**BILL BULLIVANT VK2BC**

**It is with deep regret I advise the passing of Bill Bullivant VK2BC, on 10th September 1985, following a short illness.**

**Bill, who was in his 77th year, became interested in amateur radio during his early teens, at Albury, and obtained his licence in 1925 under the call sign VK2WB.**

**Upon taking up residence in Sydney, Bill obtained his First Class Certificate and, at one stage, was stationed at Rose Bay as a base station operator in connection with the Flying Boat Service. At the demise of the Aeradio Service he was transferred to the Sydney GPO, as a telegraphist, and soon gained promotion to the position of Traffic Officer.**

**Prior to Bill's retirement from the work-force he held the position of Senior Traffic Officer (OIC) Telegraphs.**

**When Bill renewed his licence, he was allocated VK2BC, and became a keen DX fan, having contacted some 300 countries. Besides his innate skills in radio and electronics generally, he had other great hobbies including clocks, tape recorders, and photography. Furthermore, he was a talented musician, not only on the saxophone, but also other various instruments. One of my happy memories of Bill was his rendition of the 'Happy Birthday' tune, played on his saxophone.**

**Over the past nine years Bill conducted a net on 40 metres telephony which included some fifteen amateurs.**

**Being such a personality, Bill will be greatly missed by his friends and fellow amateurs, especially for his jovial and generous nature. We were the richer for knowing him.**

**To his wife Joan, and family, deepest sympathy.**

**Laurie Sinclair VK2MH**

**HAROLD GEORGE SELMAN VK3CM/ex 3GN**

**It is a sad task to report the sudden death of Harold VK3CM on 18th September 1985.**

**Born in 1907, Harold could have been classed as an 'old-timer' in amateur radio, however his enthusiasm and active nature gave no impression of his senior years. He was a Life Member of the Geelong Amateur Radio Club, and served as treasurer for a number of recent years in succession. His kindly nature, and sense of humour, were respected, and enjoyed by all club members, young and old alike.**

**Over the years, Harold developed a special rapport with the younger generation of radio enthusiasts by encouraging, and assisting them, to construct their equipment. His generosity benefited many with those 'hard to get' components, of which he seemed to have a ready supply from his 'junk collection'.**

**Harold was well known on the HF bands, in particular in the CW segments. His true love was for the 160 metre band, on which he had confirmed contacts with approximately 30 countries. With modest transmitting equipment, and a highly efficient long wire antenna system, he achieved remarkable results; his name often appearing prominently in contest result listings. These results were achieved with a minimum of fuss, but with quiet dedication and enthusiasm.**

**Harold had an involvement with radio communications from its very beginnings. He operated under the VK3GN call sign prior to World War Two, served in New Guinea during the War as an instructor and technician, and then continued his interest in amateur radio, post war, under the call sign VK3CM.**

**Harold was well-known for his enthusiasm and active participation outside of amateur radio circles, also. He had an intense interest in motor bike racing and participated in Sporting Motor Bike Club scramble and road racing events, right up to the age of 64 years.**

**Harold was known to all by his gentle nature, his sense of humour, and his unfailing goodwill. He will be sadly missed by all and deepest sympathy is extended to his immediate family, Graeme, Rita, Max, Mervin, Stanley, and Marlene, and to his grand, and great-grand children.**

**Alan Bradley VK3LW**

***Over to you continued***

*get out of here'* when in fact what is meant is *'I want to go clear'*. I'm sure if you think about it you will have heard other examples of non-amateur radio phrases on air. Perhaps like *'What is your handle, OM?'* which has been replaced by some people who say 'What's the name that way?'

The Q-code is also being abused. For example *'I'm going QRT for a second'* when in fact the radio amateur plans to go QRX. *'What is your QTH'*, never *'what's your 10-20 there'*. But listen long enough and you will hear the 10-code on the amateur bands.

It is enough to make any *'old man'* or *'YL'* take the top off a *'gaseous 807'*.

*73, never 73s, de VK3PC.*

**Jim Linton VK3PC,**
**4 Ansett Crescent,**
**Forest Hill, Vic. 3131.**
**AR**


## FAMOUS NAMES

Many well-known people enjoy the hobby of amateur radio, and it is true to say that you never know who you may talk to. Following is a short list of some, can any members add to this list?

*King Hussein of Jordan JY1 and EP1JY; Arthur Godfrey K4LIB (SK), American entertainer; Howard Hughes 9CY (SK), had this call sign in the 1920s; Owen Garriott W5LFL, first amateur-in-space; son of the late Shah of Iran EP1MP; Anastacio Somoza YN1AS (SK), former Nicaraguan dictator; Barry Goldwater K7UGA, US Senator; Sir Alan Fairhall VK2KB, former Australian Minister for Defence; Percy Sara VK2QV (SK), father of the famous "Sara Quads" who were born in the 1950s; Stu Gilliam WD6FBU, US actor and comedian; Donny Osmond KA7EVD, singer of the Osmond family; Jean Shepherd K2ORS, US author and humourist; Marlon Brando FO0GJ, US actor; Rajiv Gandhi VU2RG, Prime Minister of India, and his XYL Sonia VU2SON, Bernie Abramson W6PJX, a director of photography in Hollywood. (Bernie worked on some of the late John Wayne's films, so there is no doubt he extolled the virtues of amateur radio to Mr Wayne, off camera.*

# THE BENJAMIN FRANKLIN METHOD

Lindsay Lawless VK3ANJ
Box 112, Lakes Entrance, Vic. 3909

Nobby was a natural born experimenter, nothing deterred him from trying new ideas; if his theoretical knowledge discounted the chances of success he would proceed regardless. *"The theory is probably right"* he would say *"but it will do no harm to prove it."* The latest fixation was implanted by someone on air saying that the secret of good aerial construction was to get as much wire into the air as possible. Nobby's aerial farm therefore encompassed an area bounded by the palm tree near the wash-house (laundry to city folk), the old gum tree at the dairy, another at the creek and returning to the wash-house palm via the defunct windmill near the stables. In all, the length of wire was about two wavelengths at 80 metres. Results were somewhat patchy and according to the experts on the zone net a vertical would produce better results. Nobby admitted that it would be beyond even his considerable skills to get the same amount of wire into a vertical but it would be worth trying to see how much he could raise with a balloon or a kite or several of these.

A kite would be an interesting experiment. After all many top scientific people and other experimenters had contributed beneficial developments to engineering as a result of messing about with kites. *"It would amuse the kids too"* said the XYL *"and you have always been interested in aviation."*

Many designs have been tried, kilometres of baling twine expended, all the magpies have moved to other territories free of terrifying tethered hawks and the kids have retrieved their BMX bikes from the temporary storage in the barn. Not a metre of wire has been lifted vertically. *"I think balloons will be the shot"* says Nobby.

Balloons are easy to get but they must be filled with Hydrogen or hot air to get them off the ground and keep them there. Hot air is out because it has to be kept hot. Hydrogen has to be the answer. With the problem thought this far Nobby gave it a rest awaiting inspiration or technical advice from the experts on the net. He didn't know of a source of supply of Hydrogen which would cost little or nothing.

The final solution was almost a final for Nobby and a severe shock to other members of the Nobby household. The blue heeler bitch refuses to come out of her kennel except for meals, the bay mare bolts to the far end of the horse paddock on hearing any unusual sound and the XYL is considering a long holiday at "mums". Hydrogen you see is a by-product of battery charging; a suitable arrangement of inverted plastic funnels and plastic tubing will direct this by-product into an inverted jerry can.

To test this apparatus a 24 hour charging of the tractor battery was arranged and the result taken to the middle of the cowyard and a lighted match applied to the mouth of the jerry can. The bay mare in spite of being harnessed to the Furphy leapt the fence into the pig yard leaving the Furphy behind. The heeler which had been sniffing around the jerry can fled yelping, cleared the creek in one bound and disappeared into the scrub. Nobby escaped unhurt and except for a sort of chirpy CW affecting his hearing, is almost ready for the next experiment. He optimistically predicts a deep fade of the chirpy CW in only a few days. The jerry can will remain at the top of the dead gum in the pig yard until the tree is needed for fuel for the kitchen stove.

There is a sequel to every notable event. The XYL did take that holiday and returned with a gift for Nobby from "mum"; one Cimbidium orchid in a pot and a book entitled "How to Raise Orchids for Pleasure and Profit". Nobby thinks this is a great idea but "I will need a Commodore 64 or similar to record my orchid growing experiments" "Yes" said the XYL to herself "and for AMTOR experiments I suppose".

**AR**

**Unfortunately, due to an industrial dispute, there are no IONOSPHERIC PREDICTIONS this month.**

# SOLAR GEOPHYSICAL SUMMARY: AUGUST 1985

## SOLAR

Solar activity was very low during August, with no energetic flares being observed. The active region which raised the 10cm flux levels in recent months has now decayed. The remnants of this region produced the slight rise in the flux levels early in the month.

Even with this rise, the monthly averaged flux value was the lowest since the last solar minimum period.

10cm daily readings were 1,2=78, 3,4=77, 5,6=76, 7=77, 8=76, 9= 73, 10=71, 11=67, 12=68, 13=67, 14=68, 15=67, 16=67, 17=66, 18=67, 19=68, 20,21=69, 22-26=71, 27-29=72, 30,31=73. Average 71.6 and the Sunspot monthly average was 10,4. Sunspot yearly average 1/85=20 2/85=19.1.

## GEOMAGNETIC

August was a disturbed month, in general. There was an extended period of mildly disturbed conditions from the 18th through to the 30th. The most disturbed days were the 13th A=41 and the 31st A=32.

*1st August . . . Field unsettled to active A=17*
*12-15th August . . . Field became disturbed after 1800 UTC on 12th and was at major storm levels until around 1200 UTC on 13th. It was disturbed again between 0500 and 1000 UTC on 14th, and between 0600 and 1400 UTC on 15th. A=20,41,22,16*
*18-19th August . . . Field was at active levels between 2200 UTC on 18th and 0600 UTC on 19th. A=14,16*
*22nd-23rd August . . . Field was at active levels with periods of minor storm levels. A-18,18*
*25-26th August . . . Field was at unsettled levels with periods of active conditions. A=19,17*
*29th August . . . Field at active levels between 0600-1900 UTC. A=16*
*31st August . . . Field at storm levels between 0900 and 1900 UTC. A=32*
*Quiet days . . . 5 A=4; 6=3; 7=4; 11=4*

*From data supplied by Department of Science, IPS Radio and Space Services.*

**AR**

## DEADLINE

**All copy for inclusion in the February 1986 issue of Amateur Radio, including regular columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162, at the latest, by midday, 2nd January 1986.**

# HAMADS

**PLEASE NOTE**: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

### # TRADE ADS #

AMIDON FERROMAGNETIC CORES: Large range for all receiver & Transmitting Applications. For data & price list send 105x220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fishwick, Plaza. ACT.

### # WANTED — NSW #

NUMBER 19 ARMY SET, CW CABLE, POWER SUPPLY, CONTROL BOXES, ETC.For restoration of Bren gun carrier. Details to VK2ANW, 20 Stanley Street, St Ives, NSW. 2075. Ph:(02)44 1932.

### # WANTED — VIC #

ANTENNA TUNER: YAESU FC-102 or similar, 1000W, with power & SWR meters. VK3MW, QTHR. Ph:(03) 560 5278.

BENCHER OR BROWN BROTHERS PADDLE: Please contact Geoff VK3CGH, QTHR. Ph:(03) 288 6019.

COPY OF 0-15V BENCH POWER SUPPLY: from April 1962 issue of "RTVH" (precursor of 'Electronics Australia'). Hepburn. Ph:(03) 596 2414.

YAESU FL-110 LINEAR AMP: for use with FT7 tcvr. Ring with price and details to Ross VK3CBL. Ph:(03) 836 0073.

### # FOR SALE — ACT #

DECEASED EQUIPMENT — VK1XX: Kenwood TS-520 tcvr (early model); Drake TR-4C tcvr; Drake AC4 power supply; Trio CO-1303A oscilloscope; Katsumi electronic keyer, model EK-150; Tokyo Hy-Power Labs, universal antenna coupler, model EK-150 3.5- 28MHz. Offers to Mrs G Domjan. Ph:(062) 58 2623.

TELEPRINTER — SIEMENS MODEL 100: complete with tape reader, tape reperforator, built-in loop supply, circuit diagrams & spare paper tape. EC. $100. Ph:(062) 68 5354 BH or (062) 58 3384 AH.

### # FOR SALE — NSW #

HAL VIDEO COMMS TERMINAL — MODEL DSR-2050 KSR: For RTTY & CW, complete with monitor, model 15 teleprinter, & service manuals. $650. System 80, blue label computer with software & manuals. $300. Dual beam oscilloscope, Tektronix type 502 with manuals, trace not working. $50. Peter VK2CZX, QTHR. Ph:(02) 631 2472.

ICOM IC-4E: 70cm h/held & standard equip (in box), & 12V PSU & 240V PSU (work from mains), & gutter grip ant, with cable and whip. $350. Colin VK2JCD/exPIJ. Ph:(02) 498 4158 AH.

KENWOOD TR-2500: 2m h/held tcvr, complete with helical ant, 240V 50Hz charger, user manual, orig packing. $250. Other access avail — SMC-25, spkr/mic. $22. PB-25 spare batt pack. $30. BT-1 AA batt case. $10. MS-1 mobile mtg case inc 12V charger. $30. Leather case. $30. Service manual. $10. Laurie VK2AQW, QTHR. Ph:(02) 938 5035 BH or (02) 969 2160 AH.

KENWOOD TR7200G 2 METRE TCVR: 1W/10W, channels 1-8, plus 40, 50, 51. $145 ONO. Hygain 204BA, 4el, 20m beam. $250 ONO. Yaesu FT-101 tcvr, manual, mic, in fair cond. $250 ONO. Akashi RF thru line 144-430 watt meter. New $65. Ph:(02) 467 1784.

KENWOOD TS-120V: Ideal novice rig, in very good condition. $375 ONO. VK2AXS. Ph:(02) 520 2828 AH.

KENWOOD TS-520: Good condition. $375. HC-500 ant tuner. $75. Yaesu RSM-2 gutter mount. $25. RSE 2A 2m stub. $10. RSL 35MHz 80m resonator. $25. RSL7A, 40m resonator. $25. Martin VK2BMH. Ph:(042) 67 3836.

KENWOOD TS830S TCVR WITH MANUAL: 3 extra valves & packing. $850. Swan TBA beam ant. $155. CDE HAM II & rotator, with control. $150. Antenna mast with cables (54' high). $150. Adigawa PM2H power/SWR meter. $65. Zephyr 21ZA mic in grey handpiece. $15. Ph:871 7758.

YAESU 901DM HF TX: with FM, ext VFO, auto scan, 40 mems, auto CW chip, 240/12V ext spkr, desk & hand mics, manuals, extender board, orig pkg. $650 ONO. Ron VK2DBH. Ph:(065) 54 2105.

### # FOR SALE — VIC #

FT-230R 2M TCVR: 10/25W output, 10 mems, 2 VFOs 5/10 steps, priority chan, auto scan mic. Complete with mic & manual. $335. Little use, as new. VK3ALT. Ph:(059) 41 1248.

ICOM IC-502 H/HELD 6M SSB TCVR: Covers 52-54MHz. Ex cond. $150. Also 6m, 4el beam. $50. Bob VK3ZBB, QTHR. Ph:(03) 379 4242.

KENWOOD TS930S: in VGC with auto tuner, WARC bands, & h/held mic. $1650. Rotator SAY-103, near new. $210. Jim VK3NR. Ph:(03) 367 6920.

MARCONI TF-867 STANDARD SIG GEN: 15kHz to 32MHz in 11 bands. GC. $150. VHF Sig gen type AN/USM-44. 10-420MHz in 5 bands. GC. $250. Both above instruments are professional grade, with h/books. Hepburn. Ph:(03) 596 2414.

REALISTIC DX-300 COMMS RX: Digi read-out, in GC. $230. Ross VK3CBL. Ph:(03) 836 0073.

SHACK CLEARANCE: Yaesu FT-101E tcvr. GC. $420. Yaesu FV-10B ext VFO. $80. Yaesu FL-2100B lin amp. $400. Please contact Paul VK3AJJ. Ph:(03) 435 3643 AH or (03) 267 3399 BH.

SIEMENS 100 MK2 TELEPRINTER C/W READER: Tape punch, paper, tapes, inbuilt power supply. ETI modem in instrument case C/W tuning LEDs and meter. Active switched filter, relay PTT switching. Excellent HF operation, worked RTTY DXCC, all in perfect cond. $175 ONO. Ken VK3MW, QTHR. Ph:(03) 560 5278.

YAESU HF EQUIPMENT: Yaesu FT7 mobile tcvr, fitted with 10A & 10B preamp & processor. $370. Yaesu FT-110 lin amp to match FT-7, or similar hi-power finals. 15W drive, delivers 150W. $210. Yaesu FT-107V ext VFO, grey external, 150mV @ 50 ohms/5-5.5MHz. $40. Reel-reel tapes. 4x7" & 4x3". $10. Spider Hub, Bandit Spider quad hub (new). $40. VOM Heathkit 1M-16. 0- 1500 AC/DC & 0-1000Mohms. Line or bat pwr. Very good test unit. $40. Valves — Mullard 2 x CV788 (RF). $12. Mullard 1 x 803 & porc base (RF). $30. VK3KSA, QTHR. Ph: (03) 726 8752.

YAESU EQUIPMENT: FRG-7. $250 ONO. FT-620B in VGC. $275. FT-200. $200 ONO. FT-75B with AC/DC power packs. $300 ONO. FT-7 in VGC. $350 ONO. FL-110 linear, new. $250. Ph:(055) 69 2320.

YAESU FRG-7 COMMS RX: In exc cond. $185. Also modified Marconi R-1155 aircraft rx. $30. Both for $200. VK3AMT, QTHR. Ph:(059) 86 2601.

YAESU FLDX-2000 LINEAR AMP: All new 6KD6 tubes in exc cond. Circuit & instructions. $100. VK3CLM. Ph:(03) 542 3487 BH or (03) 794 8432 AH.

### # FOR SALE — QLD #

YAESU FT-290R 2M MULTIMODE: NiCADs, charger, ¼ wave stub, ½ wave whip, 11 el beam. All in VGC. $550 the lot. George VK4BGR, QTHR. Ph:(071) 95 4057, evenings 7-9pm only.

### # FOR SALE — NT #

GOING OVERSEAS — MUST SELL: Shure 444D desk mic, Hi/Lo impedance in EC. $95. RTTY/ASCII terminal: Xitek SCT-100, Keytronics keyboard, case, complete documentation, extras. $125. Tokyo HL-30V, 30W, 2m linear amp. $69. Dick Smith M-9517 small NiCAD charger. $8. Larsen LM-MM mag mnt VHF antenna, new. $69. RAK balun, 20-15m parallel dipole, insulators. $25. Nick VK8DE, QTHR. Ph:(089) 52 3692.

# ADVERTISERS' INDEX

KENWOOD

# TS-940S

## HF TRANSCEIVER

*The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 meter Amateur bands, including the new WARC bands. It incorporates an outstanding 150 kHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 meters, 50 kHz spacing, 500 Hz CW bandwidth).*

*Engineered with the serious DX'er/contest operator in mind, the TS-940S features a wide range of innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT. The use of a new microprocessor with advanced digital technology controlled operating features, plus two VFO's, 40 memory channels, programmable memory and band scans, a large fluorescent tube digital display with analog-type sub-scale for frequency indication, and a new dot-matrix LCD sub-display for showing graphic characteristics and messages, all serve to provide maximum flexibility and ease of operation. In addition, a CW full break-in circuit, switchable to semi break-in, a built-in automatic antenna tuner, a solid-state final amplifier that is powered from a higher voltage source, a speech processor, all-mode squelch, and a host of other convenience features all add up to even greater versatility of use in fast-paced DX operations. With its power supply and antenna tuner built-in, and with its new whisper-quiet cooling system, the TS-940S is a complete, all-in-one type transceiver that brings tomorrow's sophistication to today's serious enthusiast.*

## ASK FOR OUR SPECIAL LOW PRICE

Sold and supported by **PARAMETERS PTY LTD**
*(Incorporated in Victoria)*

PARAMETERS PTY LTD
PERFECTION IN MEASUREMENT

**Melbourne Office: 1064 Centre Road, Oakleigh South, Vic, 3167. Phone: (03) 575 0222**
**Postal: Private Bag No 1, PO Oakleigh South, Vic. 3167. Australia Telex: AA33012**

# The Australian Electronics Monthly

Australia's only independent popular magazine for the electronics enthusiast

# WOULD YOU LIKE TO RECEIVE RADIOTELETYPE AND RADIO FACSIMILE TRANSMISSIONS USING YOUR RECEIVER AND COMMODORE 64?

**The December issue of AEM shows you how!**

Using our simple, inexpensive "Listening Post" project and software published in the magazine, you can use your receiver with your Commodore 64 to decode RTTY transmissions or radio FAX picture transmissions.

With your Commodore you can display weather maps on your screen and print them out on your printer — fascinating stuff!

Since we published details of how to build the Listening Post project and use it with a Microbee in our July issue, we've been inundated with requests for details on using it with the popular Commodore 64. If you're interested —

***DON'T MISS THE DECEMBER ISSUE!***

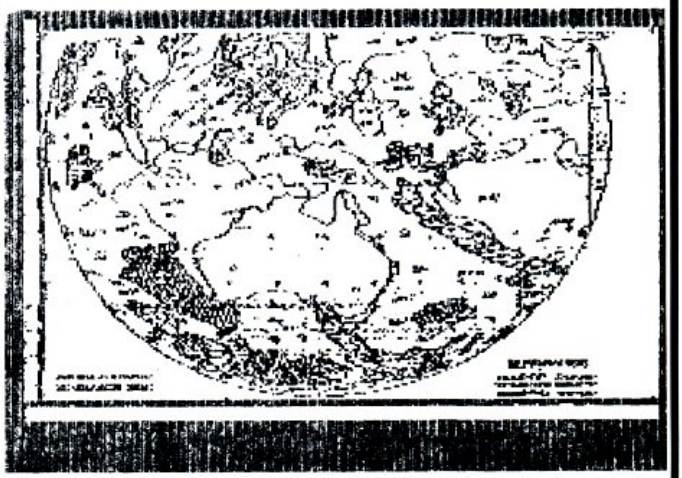
## Yet more goodies!

### A VARIABLE SPEED CW MEMORY

Here's a great little weekend project that finds that elusive DX for you. You can generate and store a brief Morse message and send it at a speed which may be varied over a wide range. VK3AMK gives away his 'secret' for successful DX hunting!

### BUILD A 'DUAL-SPEED' MODEM

Here's a great project for computer enthusiasts. This modem provides both 300/300 Baud and 1200/75 Baud operation and can be built for less than $150.



**'Nephanalysis' (cloud) weather chart printout from AXM Canberra on 13 920 kHz, 1-10-85.**

## WIN A FRG-9600 SCANNER FROM DICK SMITH ELECTRONICS IN OUR SUPER CONTEST!

**— worth over $700.**

## AND COMING UP . . .

**APPLE II AND THE LISTENING POST**

Neil Duncan VK3AVK shows how to interface the Listening Post to your Apple II, and provides software for decoding Morse, RTTY and FAX.

**RADIO COMMUNICATORS GUIDE TO THE IONOSPHERE**

Our popular series continues in January, covering "Variations of the Ionosphere". Written by internationally-known scientist Le McNamara and well-known technical author Roger Harrison VK2ZTB, this important series gives detailed, practical information in plain language, with copious illustrations.

## ON-SALE AT YOUR LOCAL NEWSAGENT OR FAVOURITE ELECTRONICS STORE — AND STILL ONLY $2.60!